BIRDS OF NORTH CAROLINA

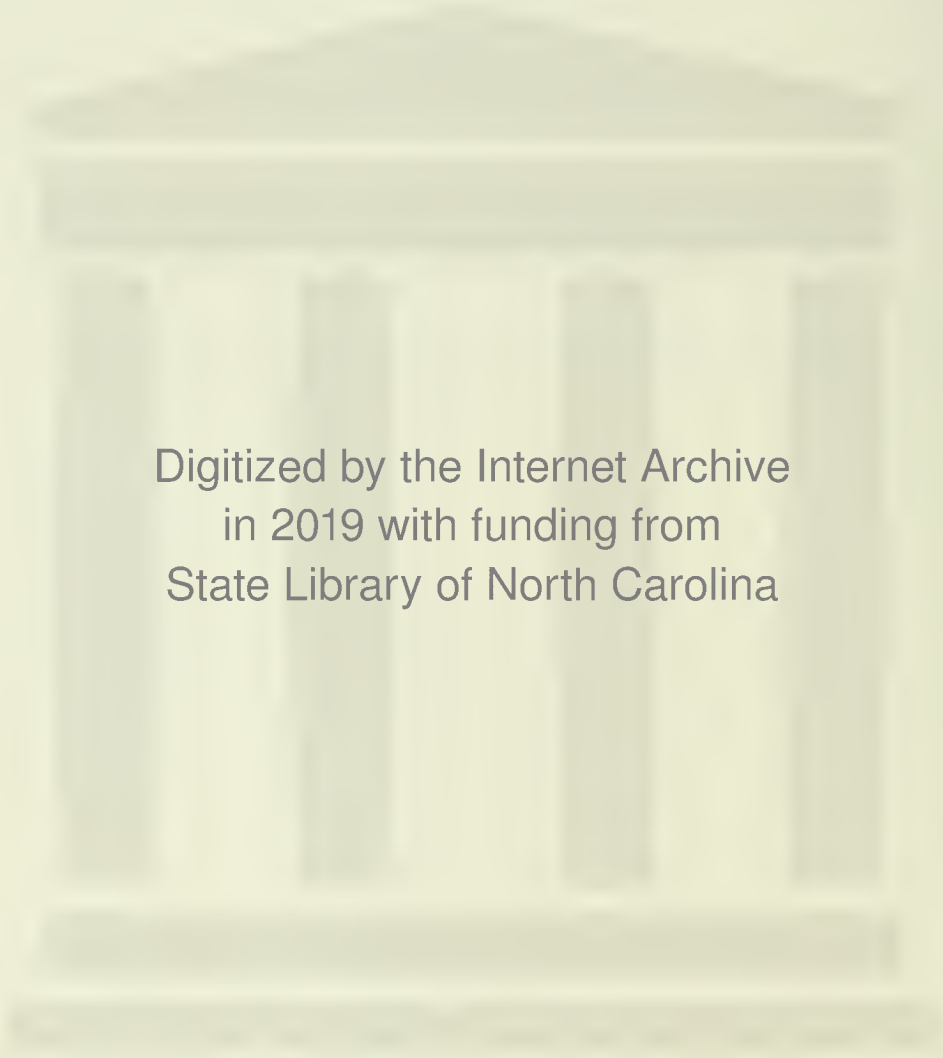
In a book with these expensive illustrations this price is possible because the authors are contributing their services, because friends of the cause are contributing illustrations and other items, and because the whole is being worked on a nonprofit basis. Among the foremost contribution[illegible]illustrations by Roger Tory P[illegible]oremost bird artist. [illegible]tions are by Robert [illegible]ace Horsfall and Rex Brasher.

Birds of North Carolina

gives the story of every bird known from this State. This includes introduced species such as the Starling and English Sparrow, and the extinct Paroquet, Passenger Pigeon, and Ivory-billed Woodpecker. The literary style and scientific accuracy you may be sure of when you note the authors and artists. The birds are arranged and described according to the latest A. O. U. Check-List. Habits, ranges, songs, calls, and the identifying marks are clearly presented. Also in the volume are: A history of bird studies made here beginning with Captain Barlowe in 1584, and a comprehensive index and bibliography.

Illustrations are much more complete than in the volume of 1942. Four new color plates and six black and white page plates from Roger Tory Peterson's well-known book, *A Field Guide to the Birds,* enrich this volume.

BIRDS OF NORTH CAROLINA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CANADA WARBLER. *Upper.* AMERICAN REDSTART. *Lower.*

North Carolina State Library
Raleigh

BIRDS
of NORTH CAROLINA

By

Thomas Gilbert Pearson

Clement Samuel Brimley *and* Herbert Hutchinson Brimley

Illustrations *by* Rex Brasher, Robert Bruce Horsfall,
and Roger Tory Peterson

1942

Revised by

David L. Wray Harry T. Davis

1959

NORTH CAROLINA DEPARTMENT OF AGRICULTURE
L. Y. Ballentine, *Commissioner*

STATE MUSEUM
Division
Harry T. Davis *Director*

1959
BYNUM PRINTING COMPANY
RALEIGH

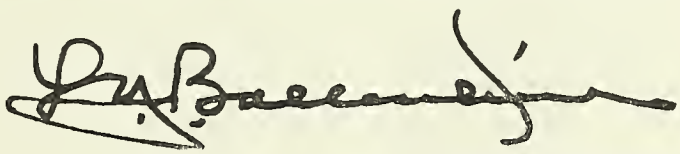
☆ FOREWORD

As Commissioner of Agriculture of North Carolina I am aware of the part played by birds in our rural economy. I am also aware of the widespread interest in birds among our people and feel that it is both my privilege and my responsibility to encourage this interest. I therefore take more than passing pleasure in commending this revised volume of ***Birds of North Carolina.***

The enterprise and knowledge of the late C. S. and H. H. Brimley of this Department, and of T. Gilbert Pearson of the National Audubon Society, made possible the first volume on our native birds in 1919. It was published by the North Carolina Geological and Economic Survey.

By 1942 this book was out of print. Interest in birds, however, was increasing, as witnessed by the development of the North Carolina Bird Club. There was an obvious need for a new and more comprehensive volume on the State's birds. The Messrs. Brimley and Pearson agreed to undertake the task of preparing it. The State Museum Division and the late R. D. Bynum, the printer, were resourceful enough to have 5,000 copies printed, and sales of the book paid the bill.

This edition was sold out by 1952 and since then there have been continuing requests for this authoritative publication. The authors are now dead. I am glad that two men in this Department who were closely associated with the Brimleys can now prepare a revised edition of ***Birds of North Carolina.*** I know of no one better suited for the job than Harry T. Davis and David L. Wray. Again the State Museum is relying on its own resourcefulness to get the volume printed, and the Department of Agriculture is pleased to sponsor such a worthy publication.



COMMISSIONER OF AGRICULTURE☆

some birds new to North Carolina were listed in Addenda, page 418-421

These can be cross-indexed, on the margins, where they belong in the main text.

Furthermore, there are two new birds beyond the Addenda, viz:

BULLOCKS ORIOLE (Icterus b. bullocki) AOU NO.508, added by Mr. and Mrs. C. R. Devant and others, at Morehead City, N. C., December through January, 1959 and 1960.

OREGON JUNCO (Junco oreganus montanus) AOU NO. 567 f, collected by J. M. Potter, Jr., at Zebulon, N. C., on March 16, 1960.

☆ PREFACE

The undersigned have undertaken the necessary revisions to bring the 1942 edition of "Birds of North Carolina" up to date for 1959. First consideration was given to what those interested in this subject would want and need. Then came the problems of how best to accomplish this. With the admiration and respect that came from continued association with the original authors, we sought advice from many others interested in the birds of this area.

This brought the conclusion that the scholarly and popular presentation made by Pearson and the Brimleys, in the 1942 edition, should not be discarded at this time. They had, with their individual literary styles, put a lifetime of field work and research into the volume.

Bird students, and their activities, have increased since 1942, and thus there has been an accumulation of new facts about birds as found in our State. This new data had to be evaluated and incorporated in the revised book. This required a diligent search through published literature, both old and recent. Twelve new kinds of birds were added to the 396 of 1942 to make a total of 408.

Since the 1942 book was about the maximum desired for size, the decision was made to incorporate a summary of the new facts about each bird as a sort of footnote. All the new material is set in a distinctive type, and starred, so that it will be readily recognized. For the birds listed in 1942 the footnotes deal principally with distribution by seasons and geographically. Some birds have other pertinent data, and many have no material change and thus there is no footnote. The twelve new birds are likewise shown in the distinctive type.

After considered study certain paragraphs or sentences have been deleted from the 1942 book. These were largly statements that should not have been included or have become irrelevant after a lapse of fifteen years. Fortunately the 1942 book had very few errors or misprints.

Illustrations presented the usual problems. The ideal is to illustrate every different bird, their sex differences and the seasonal changes of plumage. This is not achieved in this book, but there are plates and figures, along with the text descriptions, which facilitate identification. Those birds without illustrations are those quite distinctive, in color or form, and those sub-species that must be determined by collecting a series for laboratory study.

By courtesy of Roger Tory Peterson we have added four new color plates and six black and white plates to those used in the 1942 book. By reason of this certain text cuts could be left out. We extend our appreciation to Mr. Peterson, and Houghton-Mifflin Company for this contribution.

Because of the space limitations it is impractical to make specific acknowledgements to the many persons providing new information for this volume. Greater contributions have been made from Eastern Caro

lina by Mrs. Cecil Appleberry and her co-workers, Dr. Robert Holmes, Waters Thompson, J. W. E. Joyner, Mrs. Roscoe Hauser and Dr. John Grey. From the northwest Lin Hendren and E. M. Hodel made distinctive contributions. Rhett Chamberlain, with organized field notes in the Chat, furnishes a body of information. Certainly John Trott and Mr. and Mrs. Matt L. Thompson should be cited for adding new material.

Dr. Frederick C. Lincoln has generously provided the current information on the classification changes now adopted by the Committee of the American Ornithologists Union. The new check list number is provided on the right margin for each bird described.

To Mrs. Ethel P. Wray we are especially indebted for help in searching the literature, compiling new records, and reading the proof.

To the North Carolina Bird Club, and the succeeding Carolina Bird Club, we acknowledge our thanks for assistance in distribution that makes these books best serve their purpose.

From the Commissioner of Agriculture, L. Y. Ballentine, we received encouragement and support to undertake this revised volume.

DAVID L. WRAY
HARRY T. DAVIS

ACKNOWLEDGMENTS - (1942)

In the preparation of this volume the authors have received much helpful assistance from many ornithologists and others to whom we wish to express our most grateful thanks. Under the "Ornithological Historical Sketch" have been cited many of these workers who have consistently studied our birds and their contributions are hereby acknowledged. Some of these observations have been published in various journals and others have been supplied in manuscript form. The appended Bibliography covers much of this.

For technical guidance in the matter of identification and the scientific status of various subspecies, we have had the special assistance of Alexander Wetmore of the National Museum, Harry C. Oberholser and Thomas Burleigh of the U. S. Fish and Wildlife Service, and Frank M. Chapman and John T. Zimmer of the American Museum of Natural History.

In the text, reference is made to notes provided by some 250 observers. In most cases only the last name has been given. In some instances it has been necessary to use a name a great many times and by omitting the first name or the initials, space has been conserved for other uses. The following list gives the first names or the initials of those so cited as contributors of information who have not been otherwise credited therewith or listed in the bibliography, or whose works have been quoted.

Abbott, Clinton G.; Adickes, T. W.; Allen, W. F.; Allison, J. C.; Armfield, Joseph H.; Arthur, Bryan;

Bailey, Josiah W.; Barney, E. L.; Battle, Hugh, Jr.; Battle, Kemp P.; Battle, Kemp P., Jr.; Beckwith, C. W.; Benbow, C. D.; Bigham, J. H.; Birsch, Wm. L.; Blair, J. J.; Bostian, C. H.; Boyce, W. H.; Boynton, C. L.; Brimley, Ralph; Browne, C.; Bush, C. C.; Butler, Randolph;

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Davis, M. Leslie; DeForest, H. W.; Dobie, R. L.; Douglas, Mrs. Robert D.; Dunlap, J. J.;

Empie, T. G.; Etheridge, J. B.;

Fenno, L. C.; Foley, D. F.; Foster, C. C.; Fulcher, Mart;

Ganier, Albert F.; Garren, G. M.; Godwin, D. J.; Gould, J. E.; Gould, N. E.; Green, R. B.; Gregory, C. E.; Grinnell, Mrs. D. W.;

Hairston, N. G.; Hall, Robert; Hamnett, W. H.; Harbeck, E. V.; Harper, Francis; Harper, R. M.; Haynes, M. W.; Haynes, W. B.; Hildebrand, S. F.; Hodges, J. B.; Hoffman, E. M.; Hoffman, Wallace; Holding, Willis; Holmes, J. S.; Hooker, C. R.; Hudson, G. E.; Huger, Miss M. E.;

Job, Herbert K.; Jones, O. C.;

Kalmbach, Edwin R.; Keen, Allan; Kelly, Virgil; Kirchofer, Mrs. R. C.; Knight, E. C.; Kopman, H. H.; Kubechek, W. F.;

Lampry, George E.; Lassiter, Lonnie; Lassiter, R. M.; Law, A. M.; Lawrence, J. B.; Lawrence, Robert B.; Lewis, John E.; Luce, R. H.; Lyda, Ernest;

MacNider, G. S.; Martinet, M. S.; Mason, Clyde; Mason, Joseph; McAllister, L. L.; McConnell, S. M.; McCurdy, Harold; McIlwaine, W. B.; Meares, Miss

Grace L.; Meekins, Calvin; Midgett, John A.; Moore, B. M.; Moore, Miss Grace; Moyle, S. T.;

Nelson, E. W.; Newman, C. L.; Nowel, E. T.;

Odum, Thomas; Orr, Mark Taylor; Orr, Oliver; Orr, Rachel;

Pate, W. F.; Pearce, Gaston; Piner, Augustine; Post, W. S.; Potter, Eli; Pough, Richard H.; Poyner, T. J.; Primrose, William; Prytherch, H. F.;

Quay, T. L.; Quinn, Grover, Jr.;

Rabb, J. C.; Richardson, R. B.; Robinson, Wirt; Rohwer, Gregor;

Samworth, T. G.; Sherman, Franklin; Simpkins, W. A.; Simpson, S. E.; Slocum, W. H.; Soper, J. C.; Stevens, J. L., Jr.; Stewart, Miss Katherine H.; Stimson, M. E.; Stoddard, H. L.; Stone, H. F.; Stone, J. J.;

Taylor, Edmund; Taylor, O. B.; Taylor, P. L.; Thompson, Evans; Tillett, E. G.; Townsend, C. H.; Turlington, Albie;

Valentine, J. M.; Vogt, Carl;

Walsh, Lester L.; Welch, H. E.; West, R. E.; Wheat, Miss Grace; Wheeler, C. L.; Whitford, L. A.; Whitney, Stephen; Wicker, E.; Wilson, Clifton; Wilson, Mrs. Donald; Wilson, R. N.; Wray, D. L.

As indicated, the previous volume on this subject has been freely drawn upon as a basis for this new edition. The part of Dr. Joseph Hyde Pratt, State Geologist, and Dr. R. H. Lewis, long-time president of the N. C. Audubon Society, in making possible the first volume should not be overlooked. The unsigned text illustrations of the first book, many of which are used in this edition, are by Rex Brasher.

We extend thanks to Houghton-Mifflin Company for permitting us to use four plates in color and seventeen plates in black and white which add much to the value of this volume. These are all taken from that useful and popular book, *A Field Guide To The Birds,* written and illustrated by Roger Tory Peterson.

Moreover, we are particularly thankful to Mr. Peterson for his gracious cooperation in drawing and donating the seventeen new text illustrations which appear on these pages.

We are also indebted to those members of the North Carolina Bird Club who contributed funds for additional color plates.

There are three other contributors to the success of this book: Miss Grace Anderson, who worked untiringly on pre-publication subscriptions; Mrs. Roxie C. Simpson, who so carefully reread the manuscript and proof; and Mr. R. D. Bynum, of the Bynum Printing Company, who worked so diligently to print the book.

T. GILBERT PEARSON,
C. S. BRIMLEY,
H. H. BRIMLEY.

☆ The above refer to the 1942 volume. For this 1959 volume new acknowledgments are shown in the Preface. ☆

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INTRODUCTION

Ornithological Historical Sketch

The earliest record of an ornithological observation in North Carolina is that of Captain Barlowe, who in company with his associate, Captain Amadas, visited the coast in 1584. Entering the sounds by one of the inlets, they sailed to Roanoke Island and landed. Evidently they climbed one of the tree-covered dunes girding the east side of the island. Captain Barlowe writes: "Under the bank or hill whereon we stood, we beheld valleys replenished with goodly cedar trees, and having discharged our harquebus shot, such a flock of cranes (the most part white) arose under us, with such a cry redoubled by many echoes, as if an army of men had shouted together." Visiting Roanoke Island today, one will still see goodly cedar trees, but the herons, which doubtless were the birds to which he referred, are no longer to be found in such numbers.

Two years after this, in 1586, Thomas Hariot came to the island and made a list of the birds he found there. Of these he says there were "turkey-cocks and turkey-hens, stock doves, partridges, cranes and herons, and in winter great store of swan and geese. Of all sorts of fowl, I have names in the country language, of four score and six; of which number, besides those that be named, we have taken, eaten, and have the pictures as they were drawn, with names of the inhabitants; of several strange sorts of water fowl eight, and seventeen kinds more of land fowl, although we have seen and eaten many more which for want of leisure there for the purpose could not be pictured; and after we are better furnished and stored upon further discovery with their strange beasts, fish, trees, plants and herbs, they shall be published. There are also parrots, falcons, and merlin-haws, which although with us they be not used for meat, yet for other causes I thought good to mention."

One of the most interesting items in this narration is the reference to "parrots," which establishes the fact without doubt, that the Carolina Paroquet at one time inhabited the immediate neighborhood of the coast.

John Lawson, Gentleman, in his *History of North Carolina,* published in London in 1714, devotes fully ten pages to an enumeration of the birds of the State, and a dissertation on the habits and activities of many of them. Numerous birds that he found were new to him; but as evidently he was not a trained naturalist, he failed in many instances to note the difference between them and species of Europe which to his eye they much resembled. To many of our native birds, therefore, he gave the names of English species, and his descriptions being meager, we are often left in doubt as to what birds he really had in mind. Thus what he calls "Moore-hen" may have been either the Gallinule or the Coot. His "Lap-wing" was perhaps one of the plovers, the Golden, Black-bellied, Wilson's, or Piping, or may possibly have been the Dowitcher, Turnstone, or Willet.

Among the hawks he speaks of the "Hobbie." We are at a loss to understand to what species he referred, as all the other small hawks evidently are accounted for under such English titles as "Falcon," "Merlin," etc.

He made the mistake of regarding the young Bald Eagle as a distinct species, and calls it "Gray Eagle." This error, by the way, was long followed by subsequent observers of North American bird life. Audubon, writing over a hundred

years later, tells in much detail about the life history of the Gray Eagle; in fact, he has left us a full-page drawing of the magnificent "Bird of Washington," as he called it. The fact that the young Bald Eagle does not usually acquire its white head and tail until a lapse of four years will account, in a measure at least, for its mistaken identity.

On the other hand, some of Lawson's statements bear on their faces evidences of being perfectly truthful. One especially interesting note is his reference to the common occurrence of the Sandhill Crane in those days.

The following quotation from Lawson on the Carolina Paroquet is of interest:

"As for the Inlet and River of Cape Fair, I cannot give you a better information thereof, than has been already delivered by the Gentlemen who were sent on purpose from Barbados, to make a Discovery of that River, in the Year 1663, which is thus: . . ."

" 'In that time, as our Business called us up and down the River and Branches, we killed of Wild Fowl, four Swans, ten Geese, twenty-nine Cranes, ten Turkies, forty Ducks and Mallards, three dozen of Parrakeeto's, and six dozen of other small Fowls, as Curlues and Plover, &c' ".

In Lawson's time, Passenger Pigeons, which have since become extinct, were abundant birds in North Carolina. They probably gathered to breed in vast numbers in the mountains, after which they spread over the low country, and, their numbers being augmented by great flights from the North, the pigeon population must have been enormous.

Lawson says: "I saw such prodigious Flocks of these Pigeons in January and February, 1701-2 (which were in the hilly Country between the great Nation of the Esaw Indians, and the pleasant Stream of Sapona, which is the West-Branch of Clarendon, or Cape-Fair River), that they had broke down the Limbs of a great many large Trees all over those Woods, whereon they chanced to sit and roost; especially the great Pines, which are a more brittle Wood than our sorts of Oak are. These Pigeons, about Sun-Rise, when we were preparing to march on our Journey, would fly by us in such vast Flocks that they would be near a Quarter of an Hour before they were all pass'd by; and as soon as that Flock was gone, another would come; and so successively one after another for a great part of the Morning. It is observable, that wherever these Fowl come in such Numbers, as I saw them then, they clear all before them, scarce leaving one Acorn upon the Ground, which would, doubtless, be a great Prejudice to the Planters that Should seat there, because their Swine would be thereby depriv'd of their Mast. When I saw such Flocks of the Pigeons I now speak of, none of our Company had any sort of Shot than that which is cast in Moulds, and was so very large that we could not put above ten or a dozen of them into our largest Pieces; Wherefore, we made but an indifferent Hand of shooting them; although we commonly kill'd a Pigeon for every Shot. They were very fat, and as good Pigeons as ever I eat."

While it can hardly be claimed that the writings of John Lawson are of any great ornithological value, they are at least interesting from an historical standpoint, and most assuredly should be included in any bibliographical sketch of North Carolina ornithology.

The work of Col. William Byrd, of Westover, Virginia, next claims attention. In 1728, he conducted the survey of the boundary line between Virginia and North Carolina. The narrative of his experiences, which—we are told—was written largely for his own amusement and that of his friends, contains, besides an account of the survey, many side remarks on the inhabitants of the territory he traversed. His references to natural history are not infrequent, but are, for the main part, of little moment. The following statement, however, reproduced as he wrote it, tells something of the habits of a bird now extinct in North Carolina:

"Very few in this Country have the Industry to plant Orchards, which, in a **Dearth of Rum, might supply them with much better Liquor.**

"The Truth is, there is one Inconvenience that easily discourages lazy People from making This improvement: very often, in Autumn, when the Apples begin to ripen, they are visited with Numerous Flights of paraqueets, that bite all the Fruit to Pieces in a moment, for the sake of the Kernels. The Havock they make is Sometimes so great that whole Orchards are laid waste in Spite of all the Noises that can be made or Mawkins that can be dresst up, to fright 'em away. These Ravenous Birds visit North Carolina only during the warm Season, and so soon as the Cold begins to come on, retire back towards the Sun. They rarely Venture so far North as Virginia, except in a very hot Summer, when they visit the most Southern Parts of it. They are very Beautiful; but like some other pretty Creatures, are apt to be loud and mischievous."

The title of Mark Catesby's work, *The Natural History of Carolina, Florida and the Bahama Islands,* published in 1731, would lead one to anticipate finding within its covers some reference to North Carolina birds. A careful reading of its pages, however, reveals the fact that he did not enter this State.

Dr. John Brickell published in Dublin, in 1737, a book bearing a comprehensive title as follows: *"The Natural History of North Carolina,* with an account of the trade, manners, and customs of the Christian and Indian inhabitants; illustrated with copperplates, whereon are curiously engraved the map of the country, several strange beasts, birds, fishes, snakes, insects, trees, and plants, etc."

His list of birds follows closely that of Lawson, published thirteen years previously, and the similarity of the text in many instances strongly suggests the idea that he frequently bordered closely on plagiarism.

He enumerates 128 kinds of birds. Five of these, at least, we must eliminate at the start. He makes three eagles out of one, naming, as he does, in addition to the Bald Eagle, the Black Eagle, and Gray Eagle, which are simply different phases of the immature bird. We, of course, cannot accept two species of leather-winged bats as birds, and the nightingale, which he mentions, is not found in a wild state in the Western Hemisphere.

Although Dr. Brickell, in his Preface, says, regarding his natural history, "I have been very exact," the reader is not always so impressed. Of the Brown Pelican, he says: "They have an odd kind of note, much like the braying of an ass, and in spring they go into the woods to breed, and return in the autumn," whereas it is a well-known fact that the pelican is an absolutely silent bird, and in eastern United States breeds on or near the ocean beaches on the South

Atlantic Coast or on mangrove keys of the Gulf Coast. Of the cuckoo, he writes: "In winter they hide themselves in hollow trees, and their feathers come off, and they are scabby; they usually lay one egg, and that in the nest of the Hedge Sparrow."

. . . . . .

In writing of the Gray Eagles, he discusses at length their interesting characteristics of form and movements. In part he says: "They are great thieves, and live to be very old, and die not from age nor any sickness, but of mere hunger by reason that the upper beak of their bill is so far overgrown and turneth inward so much that they are not able to open it to feed themselves. They seldom seek their prey in the forenoon, for they are found sitting idle and perched upon trees all the morning. It is reported that the quills or feathers of eagles, if laid amongst those of other fowls, will rot and consume them, which I have not faith to believe. The flesh, though scarce fit to be eaten, is medicinal against the gout; the bones of the skull in powder are good against megrim; the brain, drank in wine, helps the jaundice, and the gall is of excellent use in most disorders of the eye, and applied helps the bitings of serpents and scorpions."

Delicious as Brickell's natural-history sketches are, it is probable that he acquired much of his material from the Indians and settlers, and has woven into his narrative many of the traditions and superstitions of the times. Positive statements as to what he actually saw seldom appear; one of these is when, in speaking of the smallness of the hummingbird, he remarks: "I have frequently seen butterflies chase them away from the flowers."

Another of those early gentlemen who traveled through the South and left his writings for the benefit of posterity was William Bartram, in 1791. His book is entitled *Travels Through North Carolina, South Carolina, Florida, etc.* It seems, however, that he made but one hasty trip through North Carolina. He traveled by land, and, entering the State in Brunswick County, proceeded to Southport, passed from there up the Clarendon (Cape Fear) River to Campbelltown (now Fayetteville), and thence on to Virginia. He speaks briefly of the trees, soil, and rocks, but makes no reference to the wild animal life. Some of his stories are very highly colored. He speaks of the alligators of South Carolina rushing at him with terrible roarings, and states that the steam issuing from their mouths and nostrils threw over him a "hurricane" of water.

Passing now from this short sketch regarding the early explorers and natural history observers, whose writings excite in the modern ornithologist more interest than credibility, we may consider briefly the work of modern bird students.

Apparently the first real ornithologist to visit North Carolina for the purpose of studying the birds was Alexander Wilson, a Scotchman who traveled through the country collecting birds and making drawings of them by day, and playing the flute for profit or diversion at night. Wilson was a field naturalist of the first order, and his far-famed work, *American Ornithology*, illustrated with his own drawings in colors and published in 1811, has well won for him the title of "Father of American Ornithology," despite the fact that his work was eclipsed some years later by the stupendous undertaking of John James Audubon. As an ornithologist Audubon was Wilson's superior only in that he was a more skillful artist. As a man, Wilson was of humble parentage, but indifferently educated,

was poor, retiring, sensitive, and self-effacing. Audubon was of excellent parentage, was well educated, was always confident, and at times self-assertive. Both were great contributors to the world's knowledge of American birds, and it was their work which aroused real interest in the subject and put in motion the movement for bird study from which has since developed a long line of brilliant American ornithologists.

On one of Wilson's trips through North Carolina, he found a specimen of the largest woodpecker of all eastern North America, the Ivory-billed. Probably this bird no longer occurs in this State. Another point of interest attending this capture by Wilson is that there is no recorded instance of one ever having been taken farther north in eastern America. His record is therefore interesting and unique. He says:

"The first place I observed this bird at, when on my way to the south, was about 12 miles north of Wilmington, in North Carolina. There I found the bird from which the drawing of the figure in the plate was taken. This bird was only wounded slightly in the wing, and, on being caught, uttered a loudly reiterated and most piteous note, exactly resembling the violent crying of a young child; which terrified my horse so as nearly to have cost me my life. It was distressing to hear it. I carried it with me in the chair, under cover, to Wilmington. In passing through the streets its affecting cries surprised every one within hearing, particularly the females, who hurried to the doors and windows with looks of alarm and anxiety. I drove on, and on arriving at the piazza of the hotel, where I intended to put up, the landlord came forward, and a number of other persons who happened to be there, all equally alarmed at what they heard; this was greatly increased by my asking whether he could furnish me with accommodations for myself and my baby. The man looked blank and foolish, while the others stared with still greater astonishment. After diverting myself for a minute or two at their expense, I drew my woodpecker from under the cover, and a general laugh took place.

"I took him upstairs and locked him up in my room, while I went to see my horse taken care of. In less than an hour I returned, and, on opening the door, he set up the same distressing shout, which now appeared to proceed from grief that he had been discovered in his attempts to escape. He had mounted along the side of the window, nearly as high as the ceiling, a little below which he had begun to break through. The bed was covered with large pieces of plaster; the lath was exposed for at least 15 inches square, and a hole, large enough to admit the fist, opened to the weatherboards; so that, in less than another hour he would certainly have succeeded in making his way through. I now tied a string around his leg, and fastening it to the table, again left him. I wished to preserve his life, and had gone off in search of suitable food for him. As I reascended the stairs, I heard him again hard at work, and on entering had the mortification to perceive that he had almost entirely ruined the mahogany table to which he was fastened, and on which he had wreaked his whole vengeance. While engaged in taking the drawing, he cut me severely in several places, and, on the whole, displayed such a noble and unconquerable spirit that I was frequently tempted to restore him to his native wilderness. He lived with me nearly three days, but refused all sustenance, and I witnessed his death with regret."

Recent Ornithological Research (1942)

Recent ornithological research began in North Carolina in 1871, when Dr. Elliott Coues published, in the *Proceedings of the Academy of Natural Sciences* of Philadelphia (Vol. XXIII), a series of notes on the birds he had observed at Fort Macon in Carteret County. One hundred and twenty-two species of birds are mentioned.

In 1886, Mr. William Brewster, of Cambridge, Massachusetts, collected birds in the mountains of western North Carolina, and this list, published in *The Auk,* contains records of one hundred and twenty species. The preceding winter, Charles Batchelder, also of Cambridge, made a number of observations on the winter bird life of the mountains, which were also published in *The Auk;* one of the discoveries made by Mr. Brewster was the Carolina Snowbird (*Junco hyemalis carolinensis*). J. S. Cairns, an enthusiastic bird student of Weaverville, published the results of his observations in *The Ornithologist and Oologist* in 1887. He enumerated one hundred and sixty-nine varieties of birds in Buncombe County, and was the first to find that form of the Black-throated Blue Warbler nesting in the mountains which was later named Cairns's Warbler by Dr. Coues.

While H. H. and C. S. Brimley were engaged in collecting birds and other animal forms for scientific purposes during the years 1884-1891, they published seventy-six articles on Raleigh bird life in *The Ornithologist and Oologist.*

In 1895, H. H. Brimley took charge of the State Museum and began assembling a valuable collection of birds, as habitat groups, mounted specimens and study skins. His work here, and the promotion of conservation laws, have been cumulatively effective through this long period.

C. S. Brimley has continued ornithological work to the present time so far as has been consistent with his duties in the Entomology Division of the North Carolina Department of Agriculture.

Mr. R. B. McLaughlin, of Statesville, during 1887-1888, contributed nine articles to *The Ornithologist and Oologist* on birds of the Statesville region.

For several years Dr. Louis B. Bishop, of New Haven, Connecticut, frequently visited Pea Island in Dare County, and many of his observations were published from time to time in *The Auk.*

Dr. T. Gilbert Pearson's studies in North Carolina ornithology and zoology were made at Guilford College, Greensboro, Chapel Hill, and elsewhere during his twenty-one years' residence in the State (1891-1912). Since then his work has consisted of occasional field trips, particularly in the coastal counties. Dr. Pearson's work with the Audubon Society is outlined in "Bird Protection in North Carolina."

During the past twenty years, there has been an increasing number of ornithologists engaged in field work in North Carolina. Without attempting to make a complete compilation here, the following should be mentioned:

Elmer E. Brown and his brother, Frank R., made extensive observations, especially around Davidson, Greensboro, and Salisbury from 1921 to 1932, and since 1940.

In 1928, Coit Coker and Eugene Odum began systematic bird studies at Chapel Hill which lately have been carried on by others.

John H. Grey, Jr., has made studies and collecting trips for the State Museum around Raleigh and in other parts of the State since 1935, often with C. S. Brimley and Roxie C. Simpson.

Perhaps the most effective current work for bird conservation was the organization of the North Carolina Bird Club in March, 1937. This can be largely credited to the enthusiasm and hard work of John H. Grey, Jr., and under the leadership of Miss Claudia Hunter its membership grew to more than 500. With Mr. Grey as editor, it has published *The Chat,* a popular and scientific journal dealing with our birds.

For years the late Francis H. Craighill, of Rocky Mount, has furnished many interesting records and has sponsored the activities of young observers in his section.

Ben F. Royal, of Morehead City, and Waters Thompson, of Southport, have been alert to records of many coastal birds.

Ornithologists of the U. S. Biological Survey (now U. S. Fish and Wildlife Service) have gathered scientific data of large variety and value while carrying on their work in this State. Among these are Clarence Cottam, W. L. McAtee, Edwin L. Green, Jr., Earl R. Greene, Sam A. Walker, and Thomas D. Burleigh, the latter doing extensive work in our mountain regions.

For the National Museum, notable work has been done by, and under the direction of, Alexander Wetmore. A survey was made in 1939, under W. M. Perrygo, which furnished valuable scientific data.

Bird Protection in North Carolina

Here, as elsewhere, there arose the problem of man's wise use of native wildlife. Prior to 1903 such protective laws as existed were local in character with virtually no means of enforcement. No protection whatever was provided for nongame species.

The fact that most of the wild birds were beneficial in their food habits was not yet recognized. Anything that could fly was a tempting target for the man or boy who had a gun. A good example was the Nighthawk or Bull-bat, a species which congregated in large numbers on summer evenings, in suburban districts, to get their evening meal of insects. This bird was a favorite target of misguided sportsmen.

More mercenary was the slaughter of gulls, terns, and egrets by the thousands to fill the seemingly insatiable demands of the millinery trade. Even such large birds as pelicans, eagles, and vultures were killed for their quill feathers to decorate ladies' hats.

Facing this condition, one of the authors of this volume, T. Gilbert Pearson, accepted the challenge as a pioneer in conservation. On March 11, 1902, he assembled an interested group in the chapel of the State Normal and Industrial College (now the Woman's College of the University of North Carolina) at Greensboro, at which institution he was then teaching zoology. At this time the Audubon Society of North Carolina was organized with Dr. Pearson as executive secretary. Abundant evidence was presented to show that there was urgent need for such an organization for the study and protection of wild birds and mammals in the State.

Upon petition by the Audubon Society, the State Legislature enacted a law on March 6, 1903, that provided for the following: Full protection of nongame birds; nonresident hunting licenses; a system of game wardens selected by the Society, which was given the authority to enforce the provisions of the law. However, the anomalous local game seasons for the counties were not changed and they remained a study in inconsistency. Such a study disclosed the fact that the State had about forty different open seasons for quail and about the same number for deer. In nine contiguous counties in eastern North Carolina there were thirteen different open seasons for deer.

The only revenue provided the Audubon Society to carry out its assigned task during its first eight years of activity consisted of $71,316, received from nonresident hunting licenses, and $16,592 in membership fees and contributions collected by the secretary.

These conservation efforts continued until 1911, when Pearson accepted work in a wider field as Secretary of the National Association of Audubon Societies.

. . . . . .

Nevertheless, the leaven worked and true conservation gained ground. In the Legislature of 1925, the "local law" adherents had to use their utmost efforts to head off a broad program. Then in 1927, the first State-wide game conservation bill was passed. This bill established a State Game Commission, provided uniform seasons, warden service, and active protection for birds. A subsequent enactment of this same Legislature incorporated this Commission as a Division of the Department of Conservation and Development.

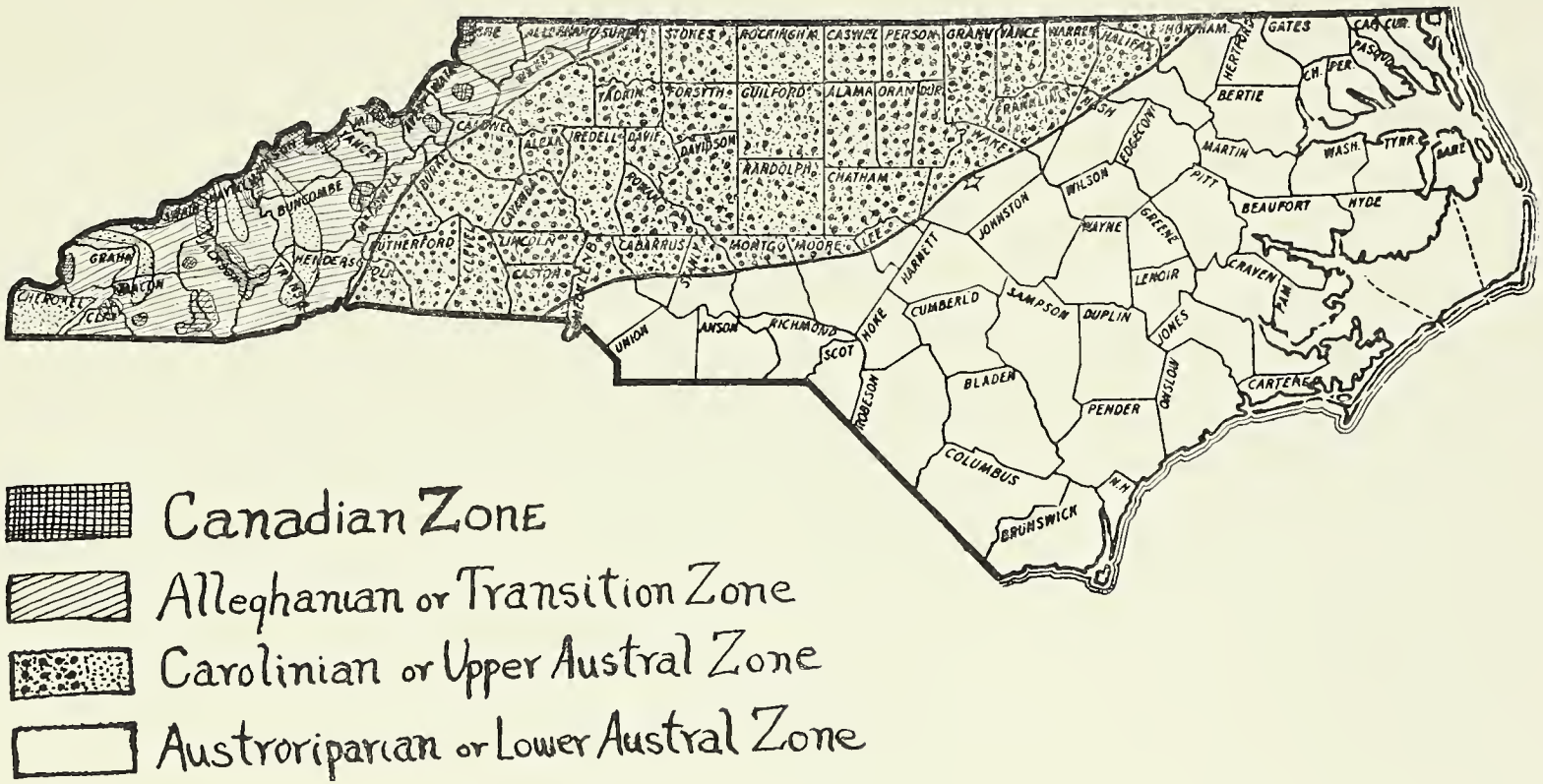
. . . . . .

☆ This Division of the Department of Conservation and Development continued in active operation until 1947. There was a good conservation program.

By 1947 the hunters and fishermen had organized and there had developed an insistence that the hunting and fishing resources of the State be placed under a separate Commission for concentrated attention. This was done by the 1947 Legislature and the North Carolina Wildlife Resources Commission was organized and activated on July 1, 1947.

The long-range conservation program was envisioned and planned for at that time and the subsequent decade has been one of commendable accomplishment. The broad educational program through schools and other groups, and in cooperation with other agencies, has been especially commendable. ☆

North Carolina Life Zones



☆ FAUNAL AREAS AND BIRD DISTRIBUTION

Climatic conditions exert considerable influence on the distribution of the wild animal life over the entire world. Intensive study of faunal geography has shown that the globe may be mapped into faunal regions and zones each inhabited by characteristic species of animal life. Factors of climate, such as temperature and rainfall, influence the distribution of animal life. Moreover, altitude, proximity to water, and exposure to the sun exert material influences upon distribution of life.

North Carolina may be divided into four faunal areas or zones, viz; Canadian, Alleghanian, Carolinian and Austroriparian (see map).

CANADIAN ZONE. A characteristic of this zone is its high development of the coniferous forests and the relatively high humidity. It extends southward along the Alleghanies where altitude increases as latitude decreases. In North Carolina it occupies the tops of our higher mountains at altitudes ranging from 4,000 to 6,000 feet. During the breeding season such birds as the Brown Creeper, Golden-crowned Kinglet, Black-capped Chickadee, Winter Wren, Red Crossbill, Red-breasted Nuthatch, Northern Raven, Pine Siskin, and Golden Eagle are found in this zone. The Carolina Junco is found here and in the higher parts of the Alleghanian Zone.

ALLEGHANIAN OR TRANSITION ZONE. This zone occupies the areas in the mountain region from an altitude of 2,500 up to 4,500 feet. As its name suggests there is considerable overlapping from this zone into the Canadian, as well as into the Carolinian. During the nesting season such birds as the Rose-breasted Grosbeak, Wilson's Thrush, Cairn's Warbler, Black-throated Green Warbler, Chestnut-sided Warbler, Blackburnian Warbler, Golden-winged Warbler, Canada Warbler, Least Flycatcher, Olive-sided Flycatcher, Yellow-bellied Sapsucker, Blue Grosbeak, Scarlet Tanager and the Baltimore Oriole are found here. The Blue Grosbeak, Scarlet Tanager, Chat, Song Sparrow, and others range from this zone eastward into the Carolinian Zone.

CAROLINIAN OR UPPER AUSTRAL ZONE. This zone occupies mainly the central portion of the State from the "fall line" west into the lower mountain valleys up to an altitude of about 2,500 feet. Roughly this fits into the area that is known as the Piedmont, with its pine and oak and the mixed hardwood forests, and the characteristic soil types. During the nesting season certain birds range into this zone from the Lower Austral Zone. Such birds are the Brown-headed Nuthatch, Yellow-throated Warbler, Summer Tanager, Prairie Warbler, Bachman's Sparrow, Orchard Oriole, and Black Vulture. Certain birds are found in the western part of this zone during the nesting season. Some of these are the Mountain Vireo, Black and White Warbler, Yellow Warbler, Ovenbird, Maryland Yellow-throat, Chat, Redstart, Prairie Horned Lark, Song Sparrow and Goldfinch.

LOWER AUSTRAL OR AUSTRORIPARIAN ZONE. This zone occupies that part of North Carolina from the "fall line" eastward to our coast. This zone may be further divided into a coastal and an inland area. Certain birds are found, during the breeding season, in the coastal area. Some of these are the Painted Bunting, Boat-tailed Grackle, Wayne's Marsh Wren, Oyster-catcher, Piping Plover, Black Skimmer, Least Tern, Common Tern, Fish Crow and Osprey. In the inland area of this zone such birds as the Swainson's Warbler, Prothonotary Warbler, and the Red-cockaded Woodpecker are found nesting. Certain birds such as the American Egret, Great Blue Heron, and Little Blue Heron are found nesting in the coastal area and also in a few inland localities of the Lower Austral Zone. Some birds range throughout this zone and also in the Upper Austral Zone during the nesting season.

The bird life of all these zones is undergoing change. Many birds that were found years ago only in certain zones are now found in others. Certain birds have gradually changed or expanded their breeding range. For example, the Blue Grosbeak was recorded only from the Carolinian Zone eastward. Recently it was found nesting at an altitude of about 4,000 feet (Blowing Rock) in the Alleghanian Zone. Certain birds such as the Barn Swallow, Black-throated Green Warbler, and Song Sparrow are found breeding in the coastal area and also in the mountains, but not in the area between. Humidity probably has a great deal of influence on this occurrence.

The limits of the divisions of the Life Zones are not strictly defined as there is a gradual overlapping of one region into another. Birds listed as characteristic of an area are not strictly confined to a particular area. However, certain birds such as the Painted Bunting, Fish Crow, Boat-tailed Grackle, among others, are found only in a restricted area of one zone. ☆

Explanatory Matter

Seasonal Distribution.—As everyone who observes birds is aware, many forms do not occur in a given locality at all seasons of the year. For convenience, therefore, it is usual to group birds as residents, summer visitors, winter visitors, transients, and stragglers.

The term "resident" is applied to those birds which are found throughout the year, familiar examples in most parts of the State being the Turkey Vulture, Carolina Wren, English Sparrow, and Mourning Dove. It should be kept in mind, however, that resident birds may be resident as to species, yet not as to individuals. For example, many robins, which winter here leave in the spring for their summer home farther North, and their places are taken by breeding birds which have wintered south of the State.

"Summer visitors" occur only in summer, the term being confined mainly to birds which rear their young in the State—as, for example, the Wood Thrush, Kingbird, and Purple Martin—but depart in autumn. After the breeding season certain birds, however, wander in late summer far from their breeding haunts; this is particularly true of herons that nest on the coast.

The phrase "winter visitor" applies to birds which come to North Carolina to dwell during the colder months. Common examples of this group are the White-throated Sparrow, Marsh Hawk, Eastern Junco, and many kinds of ducks.

"Transients" are strictly birds of passage, and appear only in the spring or fall. Most of them are here at both seasons, but a few are found only in the spring and others exclusively in autumn. Many which are transient in the central or eastern portions of the State are summer visitors in the mountains. Among these are the Scarlet Tanager, Baltimore Oriole, and various warblers.

A "straggler" is a bird that has wandered from its usual range. Among such species that have been recorded in the following pages may be noted the White Ibis, Flamingo, and Yellow-billed Tropic-bird.

The student should bear in mind, therefore, that the bird population of any given territory is constantly changing; in fact, a little work will reveal to an observer the interesting truth that in no two months of the year is the bird life of a region quite the same.

Classification * * * Birds found in that portion of the Western Hemisphere lying between the northern border of Mexico and the Arctic Sea are classified under 20 orders composed of 75 families. Some 1,200 species and subspecies are recognized. In North Carolina there have been found members of 19 orders containing representatives of 63 families. . . . .

* * *

☆ For 1959 there are twelve new birds to be added to the 396 listed for North Carolina in 1942.

The classification in this edition is changed to conform to the latest A. O. U. Check List. The A. O. U. number is given in the right margin under each bird that is listed. ☆

Terms Used in Descriptions.—The discussion of every bird prominently mentioned in these pages begins with various statements intended to provide the reader with aids for identifying the bird either in the hand or in the field. In addition to a discussion of the color of the feathers, various measurements are given in inches or hundredths of inches.

The comparative size of birds is usually shown by the following dimensions: Length (L), which indicates the total length of the specimen from the tip of the upper mandible to the end of the tail, with the bird lying on its back; length of wing (W) means the distance between the main bend of the wing and the tip of the longest primary quill, in a straight line, without flattening the wing, and not around the curve; length of tail (T) is secured by turning the tail up at right angles to the body and measuring from the tip of the longest tail-feather to where it joins the body; the tarsus (Tar.) is measured from the upper joint of the tarsus to the base of the middle toe; the extent of the wing (spread) is the distance from tip to tip with wings spread as widely as possible, preferably taken with the bird lying on its back; length of bill (B) from tip of upper mandible to base of frontal feathers.

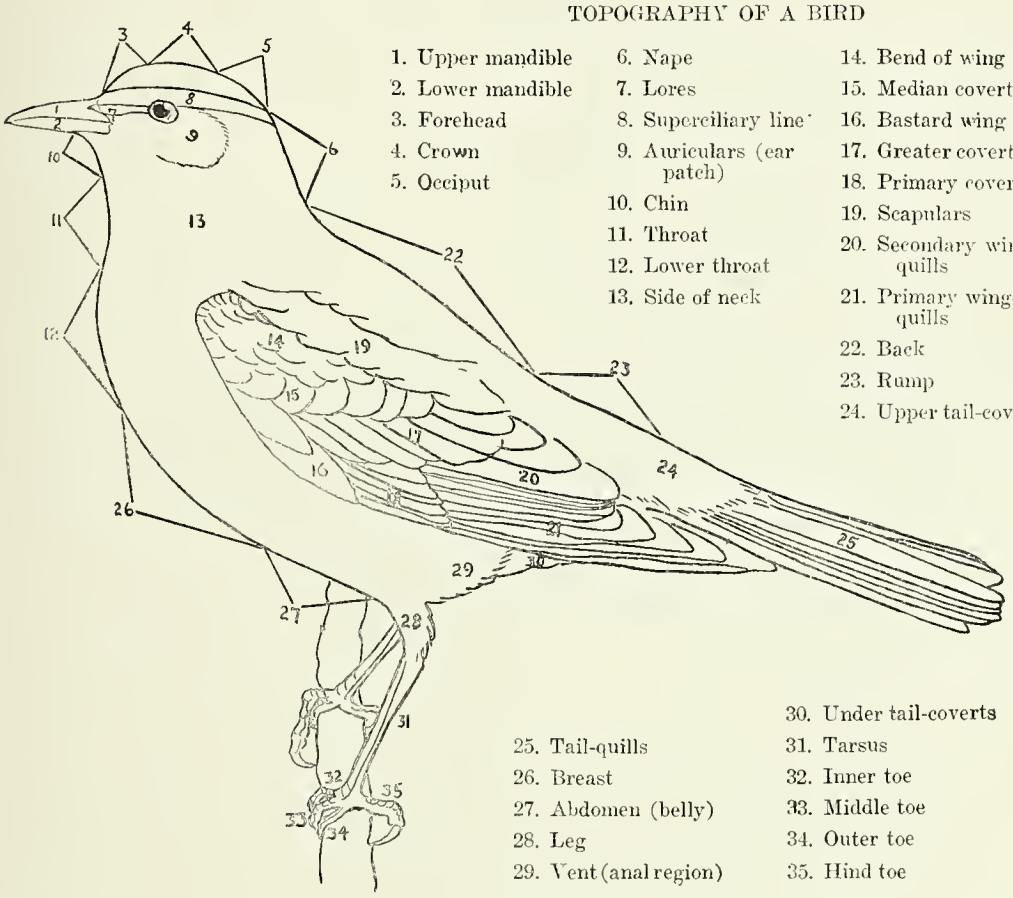
As with many other forms of life, individuals of a species vary in size, and attention is often called to that fact. For example, with the Florida Grackle, the variations in length, "10.40-12.00," indicates that individuals vary in length from

10.40 inches to 12 inches. In some cases only a single measurement is given, as for example the Common Mallard, the length of which is recorded at 22.50. This is the average length of a large number of individuals.

The "range" of a bird, of course, refers to the extent of the region where it is known to occur in a wild state.

☆ New illustrations place more emphasis on the field markings of birds in the wild rather than those collected and in the hand. ☆

TOPOGRAPHY OF A BIRD



1. Upper mandible
2. Lower mandible
3. Forehead
4. Crown
5. Occiput
6. Nape
7. Lores
8. Supereiliary line
9. Auriculars (ear patch)
10. Chin
11. Throat
12. Lower throat
13. Side of neck
14. Bend of wing
15. Median coverts
16. Bastard wing
17. Greater coverts
18. Primary coverts
19. Scapulars
20. Secondary wing-quills
21. Primary wing-quills
22. Back
23. Rump
24. Upper tail-coverts
25. Tail-quills
26. Breast
27. Abdomen (belly)
28. Leg
29. Vent (anal region)
30. Under tail-coverts
31. Tarsus
32. Inner toe
33. Middle toe
34. Outer toe
35. Hind toe

A DESCRIPTIVE LIST
of
NORTH CAROLINA BIRDS

★

Order **GAVIIFORMES.** Loons.

Loons are inhabitants of the cold and temperate portions of the Northern Hemisphere. The order contains a single family, and only one genus which contains five distinct species and a few subspecies. Two species occur regularly in North Carolina. Our North American loons breed in suitable places over the vast range extending from the northern States to the Arctic, making their nests always near the water's edge. Upon the approach of winter they move southward, but rarely do any of them go below the southern border of the United States.

The plumage of these birds is dense and their bills are heavy and sharply pointed. The legs are set so far back on the body that they walk awkwardly and with difficulty on land; in fact, they usually slide from the shore into the water much like a seal. Their food is procured by diving and pursuing their prey beneath the surface.

Family **GAVIIDAE.** Loons.

Genus **GAVIA** Forster.

COMMON LOON.

Plate 2

Gavia immer (Brünnich). [7]

Description. *Adults in summer*: the upperparts, including neck and wings, are black; the back and wings spotted with white, and the throat with a patch of white streaks, and another similar patch on each side of the neck. Underparts, except neck, white. In winter the plumage is blackish above, the feathers margined with gray but not spotted with white; whole underparts white, including the front of the neck. Length 28.00 to 36.00; wing 13.00 to 15.25. Weight, up to 10 pounds at least.

Range. United States and Canada, breeding from northern States northward. In winter, British Columbia and New England southward to Lower California and Florida.

Range in North Carolina. Common winter visitor on coastal waters from early October to mid-May, some remaining throughout the summer. Occasionally inland during migration.

The Common Loon is a large, heavy bird with short legs and webbed feet. It has a long, stout neck and a strong, sharp beak. Many specimens are fully three feet long. On land, it is almost helpless, in fact, it seems incapable of rising in the air except from a considerable sheet of water, along the surface of which it can patter a distance before swinging clear. In the spring and

summer plumage the white-fluted collar and the serrated rows of white spots on back and wings are conspicuous markings.

Although striking in appearance, it would hardly have won its place in poetry and legend but for its cry, which is one of the wildest notes heard on our sounds or about wilderness lakes. Loud and far-reaching, it comes ringing across the water with a quality of unspeakable sadness.

These birds procure their food by diving, and often become fatally tangled in fish nets. For many years they were shot during the moonlight nights of April as they were migrating northward over the sand dunes near Cape Lookout. They have long been used for food to some extent, and two of the bones of the wing are prized by local fishermen who use them as squids in trolling, especially for blue fish and mackerel.

Loons in this State ordinarily are confined to salt-water areas along the coast, but in migration some are found inland. Burleigh reports earliest fall record for Asheville, November 5 (1933), latest spring record, April 15 (1934). Some other records for the interior of the State are: Greensboro, April 19, 1900; Warsaw, May 5, 1915; Raleigh, April 13 and November 17, 1897, March 2, 1936, and May 18, 1937.

The Common Loon does not acquire its full adult plumage until the third year. Some pass the summer in North Carolina waters. Craighill found one at Roanoke Island, May 31, 1938, and another at Rocky Mount, June 20, 1938. Burleigh saw one at Seaside, June 3, 1932, and individuals were observed by H. H. Brimley and Pearson in Beaufort Inlet, July 2, 1938, and at Buxton, June 20, 1939. Pearson and Walker found three on or near the shore of Currituck Beach, June 22, 1939. Most loons seen with us in summer are immature.

E. L. Green, Jr., said that at Cape Hatteras, 1935-37, many loons cased with oil came ashore where they were dispatched and eaten by gulls.

☆ New coastwise records confirm the above range. New inland records are for Tryon and Raleigh (April), Greensboro (November, April and May), Chapel Hill (December), Davidson (May) and Rocky Mount (May, June and July).

In March, 1907, Chapman found several thousand in the sea off Hatteras. On May 3, 1953, 65 were watched in a daybreak flight from the bight of Cape Lookout. We observed that they kept their beaks open for several minutes after they began flight. ☆

RED-THROATED LOON.

Plate 2

Gavia stellata (Pontoppidan). [11]

DESCRIPTION. In summer, front of neck chestnut; head and neck gray, the latter black behind streaked with white; upperparts much as in the Common Loon. In winter, spotted with white on upperparts, otherwise much like the preceding species. Length 24.00-27.00; wing 10.00-11.50.

RANGE. Breeds from southern Canada to the Arctic Ocean. Winters along the coast to Florida and California.

RANGE IN NORTH CAROLINA. Coastal region in autumn, winter and spring. Fairly common. One record of its occurring inland.

HORNED GREBE

SUMMER WINTER

PIED-BILLED GREBE

SUMMER

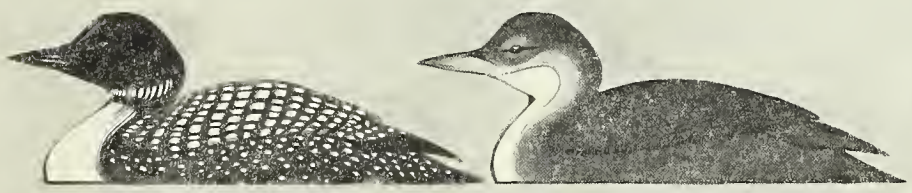
HOLBOELL'S GREBE

SUMMER WINTER

WESTERN GREBE

RED THROATED LOON

SUMMER WINTER



COMMON LOON

SUMMER WINTER

Courtesy of Roger Tory Peterson

During the time the Red-throated Loon is a resident in the waters of our coast, it is not easy at a little distance to distinguish it from the Common Loon, despite the fact that it is a smaller bird. Adickes found them common at Cape Lookout in February, 1909. An emaciated specimen was washed ashore at Beaufort, on July 3, 1912. One was taken in Onslow County, December 19, 1936, by H. T. Davis. E. R. Greene reported one on Mattamuskeet Lake, February 18, 1936. One in full adult summer-plumage was seen by Craighill near Nag's Head, Dare County, on June 1, 1938. E. L. Green, Jr., reported them more numerous than the Common Loon at Cape Hatteras (1935-37) and said that between November 11 and March 27, many came ashore in rough weather and rested in the fresh-water ponds.

☆ New records show that this Loon stays along our entire coast in the colder weather. Two new inland records are from Biltmore (1904) and Raleigh (December, 1938). ☆

Order **COLYMBIFORMES.** Grebes.

Family **COLYMBIDAE.** Grebes.

Representatives of the group are widely distributed throughout the world, at least twenty-five species being known. Six of these inhabit North America and three of them are found in North Carolina. All are expert divers and take most of their food beneath the surface. The feet are not webbed like those of a goose, but the toes are equipped with lobes which aid them in swimming. The hind toe is present, and the claws are broad and flattened. The tail is destitute of stiffened quills and the legs are inserted far back, so that the birds ordinarily do not attempt to stand or walk in a horizontal position; hence they are seldom seen on land.

In summer they seek weed-grown ponds or lake margins to build their floating nests, but in winter, with the exception of the Pied-billed Grebe, they are mainly marine. Bearing, as they do, a certain resemblance to small ducks, they are sometimes shot by inexperienced hunters who are due for a vivid disappointment when the birds are served on the table.

Genus **COLYMBUS** Linnaeus.

HOLBOELL'S GREBE.

Plate 2

Colymbus grisegena holboelli (Reinhardt). [2]

DESCRIPTION. Head above, crest and back of neck, black; back blackish; throat and sides of head white; front and sides of neck reddish shading on breast into silvery white. This is the summer plumage. In winter the bird is blackish above with white underparts, the front and sides of neck pale reddish in adults, gray in immature birds. Length 18.00-20.00; wing 7.30-8.00.

RANGE. In North America, breeds from Minnesota and Washington northward. Winters southward to California, Ohio Valley, and South Carolina. Mainly in salt-water regions.

RANGE IN NORTH CAROLINA. Scarce winter visitor along the coast, casual inland.

HORNED GREBE. *Male and Female.*

Holboell's Grebe is our largest member of the grebe family, and may be distinguished from the loons by its smaller size, the shape of its feet, and, in flight, by the conspicuous white patch on the wings. When alarmed, it frequently swims with the body submerged. This species was formerly caught in some numbers in Neuse River below New Bern in gill nets set for shad. Specimens were exhibited in the flesh at the New Bern Fair in 1892 and 1893 (H. H. Brimley). Coues found it near Beaufort in 1871; five were seen by J. T. Nichols and Ludlow Griscom in Currituck Sound, January 2, 1915. Two specimens were received by the State Museum, from Roanoke Island, in March, 1912. E. L. Green, Jr., reports a few at Cape Hatteras between December 27 and March 27, in the winters of 1936-37.

Inland, one was taken alive on the ice at Lake Johnson, Wake County, February 10, 1934; twice they have been recorded from Chapel Hill, Orange County—one by J. J. Dunlap in 1877, and two by Eugene Odum, October 23, 1932.

☆ New coastal records are several for December and one for April, near Wilmington. Inland records to add are for Raleigh (May 5 and March 19), and Greensboro (March 21). ☆

HORNED GREBE.

Plates 2 and 3

Colymbus auritus Linnaeus. [3]

DESCRIPTION. In winter this species is grayish-black above and silvery white below, but in the breeding season the head and upper neck and throat are black, the lower neck and broad stripe through the eye to back of head which ends in a dense tuft, more or less reddish or ochraceous. Female: duller. Length 12.50-15.25; wing 5.75.

RANGE. Northern portion of northern hemisphere, breeding from northern tier of states northward; in winter from Maine and Alaska southward to California and Florida.

RANGE IN NORTH CAROLINA. Common in the coastal waters in winter, casual inland.

These interesting birds are abundant in the bays and sounds of our coast from early October to late April. Like all grebes they procure their food by diving. Often they are quite unsuspicious, coming within a few feet of a boat at anchor, or passing beneath the pier on which the observer may be standing. Although not associating regularly in flocks, as many as a dozen or two, or on rare occasions some hundreds, may sometimes be seen within sight at one time.

Although chiefly a bird of the coastal country, it also occurs inland; note the following records: Buncombe County, November 18 to December 4, once in the spring, March 26 (1934), (Burleigh); Mecklenburg County, November 1, 1908 (Pearson); Wake County, January 14, 1909 (H. H. Brimley), April 18, 1925, also October 2, 1926 (Snyder), and December 9, 1935 (C. S. Brimley). C. M. Coker found one in Orange County, November 14, 1930. These were all wearing their winter dress.

We have two records of it being taken in full spring plumage, which differs materially from that worn in the fall and winter. Pearson secured a full-plumaged male at Greensboro in April, 1902, and another was taken April 7, 1907, at Norlina, Warren County, and sent to H. H. Brimley at the State Museum.

This bird, in common with the following species, is often called "Water-witch," or "Didapper."

☆ Coastwise we have 30 more records (October to late May). Inland we have mid-winter records for Charlotte, High Point, Greensboro, Chapel Hill, Raleigh, Mount Olive, Rocky Mount and Louisburg. Spring records are for Greensboro (March 27th), Rocky Mount (March 18th and April 2nd) and one in nuptial plumage at Holly Ridge (May 24th). ☆

PIED-BILLED GREBE.

Plate 2

Podilymbus podiceps (Linnaeus). [6]

DESCRIPTION. Upperparts brownish-black, upper breast, neck and sides of body more or less brownish, indistinctly mottled with dusky; the throat black in summer, white in winter; bill with a *black band* in summer, this absent in winter. Length 13.50; wing 5.00.

RANGE. Breeds locally from central Canada to Mexico. Winters from British Columbia to New York, and southward to Cuba and perhaps Central America.

RANGE IN NORTH CAROLINA. Whole State, more numerous in winter or during the migrations. Known to breed in Craven County.

The Pied-billed Grebe is about the size of the Horned Grebe, and in winter plumage, when seen at a distance, may be mistaken for that species. In the public mind both pass for "Didappers," or "Hell-divers."

Apparently it seldom resorts to flight except in migration, or when moving from one feeding ground to another. When alarmed it may sink slowly beneath the surface until only the bill and eyes are visible. Again it will spring forward and dive with astonishing quickness, after which it often swims for some distance beneath the surface, the legs striking horizontally as it progresses.

The nest is a floating mass of decaying vegetation, generally attached to growing plant life. The dull white eggs usually are more or less stained by the nesting material. Shallow ponds and quiet fresh-water bays constitute the chief habitat of this grebe. It feeds either on or below the surface, eating frogs, fish, newts, leeches, larvae of the dragon-fly, and other small aquatic life.

While these birds have been positively identified in the counties of Craven, Buncombe, Guilford, Orange, Wake, Watauga, and elsewhere, no nest had been reported until June 18, 1909, when Philipp, Bowdish, and Abbott discovered three of them at Lake Ellis, Craven County. Two held five eggs each; in the third there were seven eggs. Robert P. Allen examined a nest with five eggs, in the same waters, on May 26, 1931. Samworth regards this bird as a breeding species in Onslow County.

Although many have assumed that the grebe can make progress on land only by sliding along on its belly, it should be recorded that the Brimleys have witnessed five captive Pied-billed Grebes that readily stood erect and moved about for short distances without difficulty.

☆ Many more of these grebes have been observed, and from all parts of the State. Largest numbers were along the coast from

September until May. New nesting records are from the counties of Dare, Bertie, Nash and New Hanover.

NOTE: The Western Grebe *Aechmophorus occidentolis* (Lawrence) [1], (plate 2) has been found as a straggler on the Atlantic Coast, and might be found in North Carolina. The nearest record now is for McClellanville, S. C. (June 22, 1936). The normal winter range is from British Columbia to central Mexico and as far east as Kansas.

A long slender neck characterizes this grebe. The crown and the back of the neck are shining black; the head, fore-neck and underparts are a satiny white. ☆

Order **PROCELLARIIFORMES.** Tube-nosed Swimmers.

These are pelagic birds with pointed wings, bills strongly hooked at tip, composed of several distinct pieces and with the nostrils in the form of a double tube lying along the culmen. All are marine, coming ashore only to breed. Of the one hundred known species, four have been noted along our coast. Few seas of the world are without some of these birds.

Family **PROCELLARIIDAE.** Shearwaters, Fulmars, and Petrels.

Rather large gull-like birds, but easily distinguished from gulls by the structure of the bill. One genus known off our coast.

Genus **PUFFINUS** Brisson.

SOOTY SHEARWATER.

Plate 4

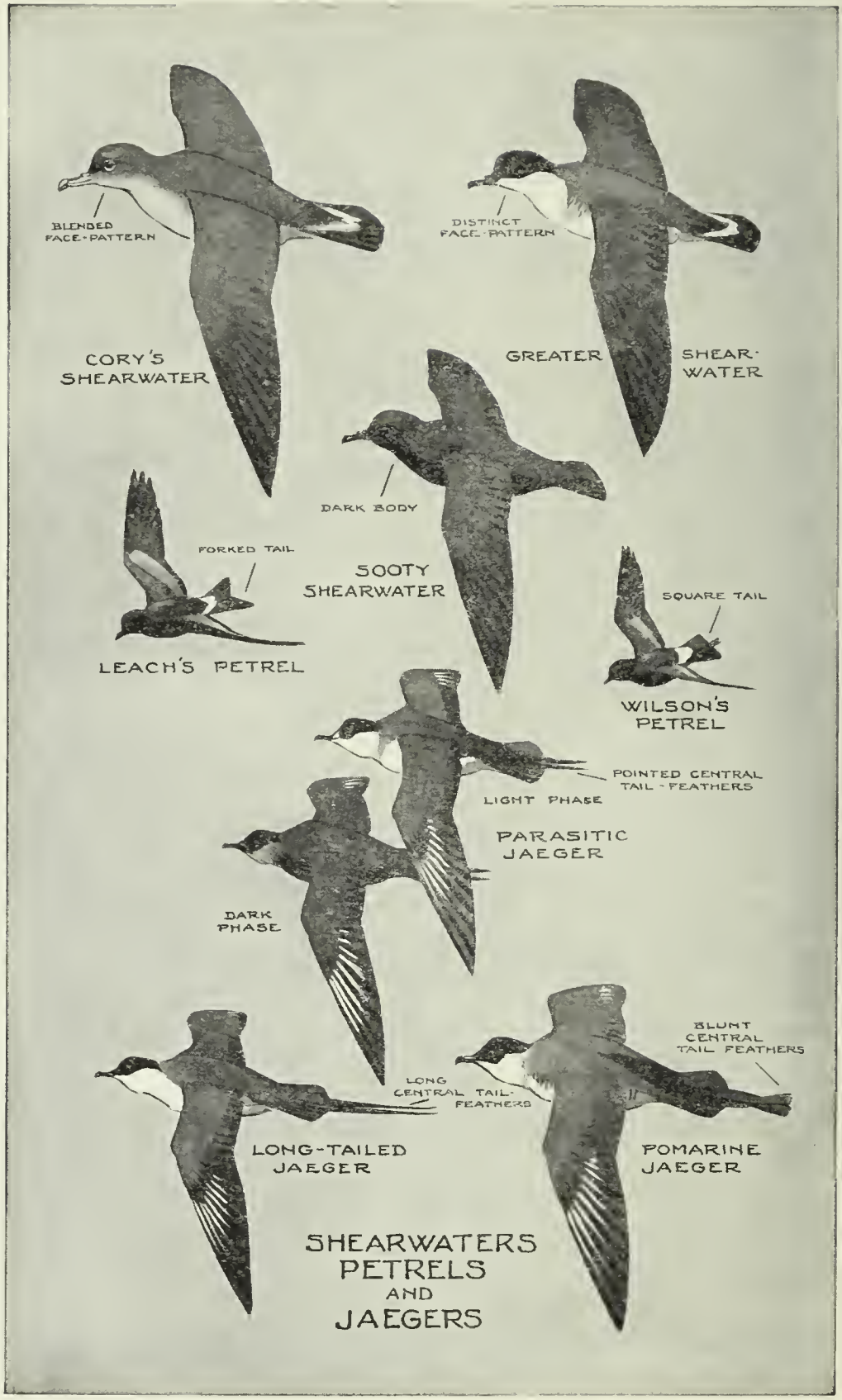
Puffinus griseus (Gmelin). [95]

DESCRIPTION. Whole body brownish-black, underparts somewhat lighter. Length 17.00; wing 12.00.

RANGE. Breeds on islands in the south Pacific Ocean from New Zealand to Cape Horn. Wanders northward to the Aleutian Islands, and in the Atlantic to Greenland.

RANGE IN NORTH CAROLINA. Occasionallly approaches the coast in summer.

Our records of this ocean wanderer along our coast have not been numerous. Dr. Coues, the first ornithological observer who worked in eastern North Carolina, secured a Sooty Shearwater near Fort Macon, May 21, 1870. After this none was observed for the next twenty years. Then on June 8, 1890, H. H. Brimley, while on the ocean beach near Fort Macon, saw one flying along over the surf. He shot it, and swimming offshore brought it to the land. Eight years later Pearson was invited to the house of A. Piner in Morehead City to see what he was told were two mounted "black gulls" that Piner had shot near Cape Lookout in the summer of 1897. Finding these to be Sooty Shearwaters, he purchased them for the State Museum. Another record was made in the same neighborhood on June 3, 1930, when J. S. Gutsell and Captain Arthur of Beaufort found a dead one on the beach. Burleigh captured an injured bird near Fort Macon, May 28, 1932.



Courtesy of Roger Tory Peterson

Aside from the five records given above, all of which were from the Beaufort region, we know of only three other occasions when this Shearwater has been identified in North Carolina waters. One of these was near Brown's Inlet, Onslow County, on June 8, 1935; another at Ocracoke Inlet, Hyde County, on September 15, 1940. H. H. Brimley made these two discoveries and on each occasion approached very closely to the single bird seen. The third record was May 22, 1936, when a specimen from New River Inlet was sent to the State Museum.

It may be noted that these birds were recorded on dates between May 21 and September 15, which pretty well represents the period of the year when they are found in our latitudes. Breeding on islands of the Antarctic seas they come north to spend the months which constitute the winter period in their home waters.

☆ New records are from Baldhead Island (June 4th and 10th), and Wrightsville Beach (May 31st), all in 1947 ☆

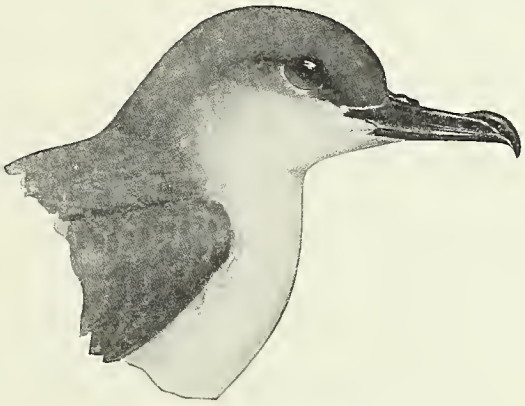


Fig. 1. Audubon's Shearwater.

AUDUBON'S SHEARWATER.

Puffinus lherminieri lherminieri Lesson. [92]

DESCRIPTION. Uniform sooty-black above, white below; white of the undersides extending upward nearly or quite to the eye. Length 11.00; wing 7.50-8.50; tail 3.50.

RANGE. Breeds in Burmuda, Bahamas and West Indies, one chalky-white egg being laid in a hole or cave facing the sea. In summer, the bird seeks its food in the waters of the western Atlantic from the West Indies to New Jersey.

RANGE IN NORTH CAROLINA. Summer visitor, found at sea off our coast in July and August.

This smallish, white-breasted shearwater has been recorded in North Carolina waters at various times during the past thirty-one years. The earliest record is of one found dead by Bruner near Beaufort, July 28, 1910. A lone individual was identified three miles off Shackleford Banks, July 13, 1913, by Harper. From a flock of more than one hundred feeding on sardines near Cape Lookout, R. J. Coles, on July 25, 1924, shot twelve. One was found dying on the beach of Bogue Banks by Gutsell and R. H. Luce, July 6, 1925. One was collected at Bogue Banks by R. E. Coker and Hildebrand, July 26, 1925; and another was reported from Cape Lookout by Miss Roxie Collie, August 11, 1936.

Also recorded by H. H. Brimley in *The Auk* (January, 1941, p. 6), are accounts of various specimens being found, living or dead, by Walker about Pea Island during July and August, 1938-39. Note is also made of one or more being seen by Bragaw off the mouth of the Cape Fear River, July 23, 1939. One was found dead by Mart Fulcher at Snead's Ferry and sent to the State Museum, August 10, 1939.

From little caves and grottos in the cliffs of sea islands where Audubon's Shearwater breeds in the northern semitropical zone, the young are sometimes taken for food. Their strong-tasting flesh is regarded as more palatable if treated sufficiently with salt and lime juice.

☆ We add 3 new records. Off Fort Macon 70 were counted (July 29 and 30), and one was seen (August 21). At Wrightsville Beach 8 were seen (July 30-August 2). ☆

GREATER SHEARWATER.

Plate 4

Puffinus gravis (O'Reilly). [89]

DESCRIPTION. Dusky above, white below, the white of the throat very abruptly separated from the dusky color of top and sides of head. The longer upper tail-coverts mostly white. Length 19.00-20.00; wing 11.50-13.00.

RANGE. Atlantic Ocean.

RANGE IN NORTH CAROLINA. Occasionally approaches our coast.

The Greater Shearwater, while generally shunning the immediate proximity of the coast, is often seen among the outer islands off Maine. Here Pearson observed them in numbers about fishing vessels where they come for scraps when fish are cleaned. On the Grand Banks of Newfoundland he has noted flocks containing many hundreds of individuals. In northern waters the bird is widely known as the "Hagdon." Although an abundant species, its nest was never found until 1908. Even now its only known breeding place is a group of little islands, Tristan da Cunha, midway between South America and the Cape of Good Hope.

Our records for the bird in North Carolina waters are as follows: Maynard saw a number off Cape Hatteras, on July 4, 1897. The State Museum received one from New River Inlet, Onslow County, June 25, 1938; and E. L. Green, Jr., recorded some at Cape Hatteras Point in 1936. One of these was seen July 24, two on August 1, and one on August 12. He watched them for some time with a 20-power telescope at a distance of 150 yards. One was found dead on the beach of Currituck County, near Poyner's Hill, by Pearson and Walker, June 22, 1939; and Walker picked up another on Bodie Island, four days later.

☆ Two later records are from Wrightsville Beach (December 28, 1946), and Fort Macon (August 4, 1953). ☆

CORY'S SHEARWATER.

Plate 4

Puffinus diomedea borealis Cory. [88]

DESCRIPTION. Upperparts dusky; underparts white, the white of the throat blending gradually into the darker color above. Length about 20.00; wing 14.00.

RANGE. Breeds April to July on islands of eastern Atlantic, including Azores, Madeira and Canary Islands. At other times found on the ocean from Brazil to Newfoundland.

RANGE IN NORTH CAROLINA. May be found at any time, but most likely to be seen in late summer or autumn.

At a distance the Cory's Shearwater closely resembles the former species in that both are white below, dark above, and are about the same size. In the hand or close enough to be observed carefully with a field glass, the difference in the coloring of the head is easily discerned. The top of the head of the Cory's is not so dark and the white from the throat blends with the dark of the head in such a way as to produce a notable gray color on the cheek. The Cory's bill is yellow; the bill of the other is black.

Cory's Shearwater was first listed among the birds of the State by Atkinson who, in his "Preliminary Catalogue of North Carolina Birds" (1887), made the following statement: "I saw at Beaufort a wing of one of the Shearwaters taken at that place, and from the description of the bird given me, I judge it to be this species." Atkinson's identification may have been correct despite the vagueness of his data. As a rule these birds keep well out to sea, rarely coming into sight of land.

In the summer of 1940 many appeared in the western Atlantic off the Southern States, as on July 13 of that year Pearson, while on a steamer bound for New York, from the Windward Passage saw at least 1,000 of the birds a few hundred miles off the South Carolina coast. They were assembled in four distinct flocks and evidently were feeding on some abundant form of life at the surface. The steamer passed directly through one group, the individuals of which appeared so loaded with food that they took flight with much reluctance. A number did not even attempt to fly, but upon the close approach of the steamer dived and readily swam under water for some distance. From the deck, their movements beneath the surface could easily be followed.

About this time two Cory's Shearwaters that died at sea were washed ashore on Pea Island where they were picked up by Samuel A. Walker and sent to the State Museum in Raleigh. These specimens were recovered on July 6 and August 20, 1940.

☆ A new record is for Shackleford Banks, August 13, 1955. ☆

Family **HYDROBATIDAE.** Storm Petrels.

Small petrels with the second primary the longest; the wing less than seven inches, and the rump (in our species) white. Two genera doubtless occur off our coast.

Genus **OCEANITES** Keyserling and Blasius.

WILSON'S PETREL: "Mother Cary's Chicken."

Plate 4

Oceanites oceanicus oceanicus (Kuhl). [109]

DESCRIPTION. Sooty-black, somewhat lighter beneath; upper tail-coverts white; webs of feet mostly yellow. Length 7.00; wing 6.00. Tail not notched.

RANGE. Breeds on islands east and south of South America. In summer it cruises over most of the Atlantic north of the Equator.

RANGE IN NORTH CAROLINA. Found in the ocean off our coast from May to September.

Those who have occasion to sail the north Atlantic during the summer months frequently have opportunity to watch the movements of the Wilson's Petrel, often called "Stormy Petrel." In size and color it strongly suggests a Purple Martin with a white rump. It flies low over the sea, just clearing the crest of the swells or dipping between the combers. Often its feet hang down and as it passes so near the surface it seems in truth to be successfully accomplishing the attempt of Peter of old to walk upon the water, as it gathers the fragments of fish, fish oil or minute crustaceans upon which it feeds.

While usually staying well offshore, this, the smallest of our sea birds, occasionally enters our inlets and on rare occasions may be seen in the sounds. During the severe storm that raged on the North Carolina coast, August 28, 29 and 30, 1893, great numbers of them were driven and washed ashore along the ten-mile strip of beach extending from near the mouth of Beaufort Harbor to Cape Lookout. (*The Auk*, Vol. 16, p. 247.)

A specimen was recorded from New River Inlet, Onslow County, on June 11, 1921, by H. H. Brimley. One was seen by Pearson and others in Beaufort Inlet, July 2, 1938. Some were observed off Cape Hatteras, July 7-September 17, 1936, by E. L. Green, Jr. S. A. Walker has seen single birds at Oregon Inlet May 27, 1938; May 28, 1940; and June 13, 1941. Roxie Collie saw one in Newport River, near Beaufort, August 9, 1941. They are not uncommon around Cape Henry in summer.

☆ Five more records of this species include three off Cape Lookout (May 2, June 16 and June 30), one off Atlantic Beach (June 29), and a dead bird from Masonboro Sound (August 26). ☆

NOTE: The Leach's Petrel (*Oceanodroma leucorhoa leucorhoa*) (Vieillot), [106], Plate 4, may be found in North Carolina waters at any time. It breeds abundantly on islands of the sea from Maine northward to Greenland, and winters in tropic waters. The tail is slightly notched or forked instead of rounded, and the flight is said to be different from that of Wilson's Petrel.

Order **PELECANIFORMES**. Totipalmate Swimmers.

Water birds with all four toes connected by a web. All six families have occurred in the State.

Family **PHAETHONTIDAE.** Tropic-birds.

Six species of tropic-birds inhabit the tropical seas. They are about the size of our larger terns. Their wing-strokes are rapid and their central tail-feathers are very long. A single genus occurs off our coast.

Genus **PHAETHON** Linnaeus.

YELLOW-BILLED TROPIC-BIRD.

Phaethon lepturus catesbyi Brandt. [112]

Description. Plumage white, with some black patches on the scapulars; shafts of lengthened tail-feathers black. Length 25 or 30 inches, of which the middle tail-feathers may contribute as much as 20 inches. Wing about 11 inches; bill, yellow (red in the breeding season). The young are irregularly barred with black, the tail-feathers not lengthened.

Range. Tropical seas, breeding as far north as the West Indies, Bahamas, and Bermuda Islands, but not in the United States.

YELLOW-BILLED TROPIC-BIRD

Fig. 2. Tropic-Bird.

This bird wanders far over the ocean, rarely being found near land. Sailors call it the "Boatswain-bird" as its cry is a shrill whistle not unlike that produced by a pipe the boatswain is supposed to carry. Its beautiful white plumage, set off with a deep U-shaped stripe of black beneath the wings and around the lower abdomen, makes its identity easy to determine. Furthermore, when in full plumage its pointed tail constitutes more than half its length.

Its most northern breeding place is in the Bermuda Islands, which are about 900 miles directly east of Charleston, South Carolina. Here it comes on shore to lay its single egg in a cavity of some sea cliff, and is generally known as "Long-tail." It is said to feed chiefly on squids which it secures by plunging tern-like from the air. In the tropical seas it sometimes moves slowly over passing ships, when its strikingly beautiful form may be observed and admired at leisure.

One of these graceful long-tailed flyers of the warm seas was seen about fifteen miles off Cape Lookout on August 3, 1936, by members of a fishing party, includ-

ing Dr. H. F. Prytherch, Director of the U. S. Fisheries Laboratory at Beaufort, and U. S. Senator Josiah W. Bailey, of Raleigh.

At the time the observation was made this bird was farther north along the American Continent than any tropic-bird had ever been recorded, with the single exception of one noted off the coast of Nova Scotia, September 4, 1870. A second record for North Carolina was made July 5, 1939, by Walker, who found a dead one that had been washed ashore on the north side of Oregon Inlet. From the photograph he made of this specimen it is easy to see that the bird was in immature plumage, as the back was fully barred with wavy, black lines. The long, central tail-feathers worn by the adults also were absent.

A third was seen at Whistling Buoy in the Gulf Stream, off Beaufort, July 25, 1941, by H. F. Prytherch.

Family **PELECANIDAE.** Pelicans.

Ten species are found in the warmer countries of the globe. Two of them come to North Carolina, one chiefly in summer, the other only during the migrations. They are large, fish-eating birds, gregarious on their breeding grounds, and also generally are seen in small flocks when seeking food or while resting on some unfrequented shore.

Genus **PELECANUS** Linnaeus.

WHITE PELICAN.

Pelecanus erythrorhynchos Gmelin. [125]

DESCRIPTION. White, with wing quills black; crest on back of head white or straw-color. Immature birds have top of head and lesser wing-coverts grayish. Length 4½ to 6 feet. Expanse of wings, 8 or 9 feet.

RANGE. Temperate North America, breeding in colonies on islands in lakes from California northward to central Canada and eastward to North Dakota. On May 23, 1920, Pearson made the surprising discovery of a colony of fifty birds breeding on an island in Laguna de la Madre, Texas. A very limited number usually pass the summer along the Gulf Coast.

RANGE IN NORTH CAROLINA. An occasional visitor between May and October. Winters chiefly in salt-water areas from California, Florida and the Gulf Coast, southward to Panama.

The White Pelican is the largest web-footed bird found in the State, although some Whistling Swans may be heavier. In gathering the fish, which constitute its chief diet, it swims leisurely along and scoops its prey into the capacious sack that is suspended beneath its lower mandible. Pearson once watched a large number of these birds in an almost perfect circle closing in on fish in shallow water. Beating the water with their wings they drove the fish towards a common center and soon could be seen striking vigorously with their great bills as they collected their prey.

The little knowledge we have of this species visiting North Carolina indicates that it may appear in almost any section of the State. Being such an unusually conspicuous bird, the appearance of one in a neighborhood has often tempted some man to shoot it.

On a pond near Raleigh, one was killed May 12, 1884, by J. H. Coover. In Buncombe County five were shot from a flock of 40 on the French Broad River, in May, 1889 (Cairns); J. H. Bigham took one on the Catawba River, October 2, 1907, and one was taken at Bunnlevel, Harnett County, September 23, 1924, by Albie Turlington, and brought to the State Museum. Two were shot in Warren County on September 16 and 17, 1924. Earle Greene saw one at Lake Mattamuskeet, June 16, 1935. Waters Thompson reported three of these birds circling around the water-front at Southport, June 4, 1939. These we believe to be the only White Pelicans recorded in the State over a period of more than fifty-seven years.

Fig. 3. White Pelican.

☆ We add five records. At Lake Mattamuskeet a flock of 4 was seen in December, and a flock of 10 in February. On Lake Junaluska a flock of 7 was seen on May 26, 1953. One was seen at Clinton on August 8, 1954. One was taken near Nashville on October 11, 1945, and presented to the State Museum by W. S. Bunn. ☆

BROWN PELICAN.

Pelecanus occidentalis occidentalis Linnaeus. [126a]

Description. Top of head and stripe down each side of neck white; also white spot on upper part of breast, and back of head and neck, and there is a brown patch on front of neck. Rest of upperparts mostly silvery gray; underparts blackish-brown streaked with white. In winter the whole head and neck are white in adults; immature birds are mostly grayish-brown. Length about 4¼ feet; expanse of wings, 6 to 7 feet. Length of bill, 11 to 13 inches.

RANGE. Breeds regularly from South Carolina southward to the West Indies and around the Gulf Coast southward to Brazil. Winters from Florida southward.

RANGE IN NORTH CAROLINA. Chiefly about the coastal inlets in summer. Known to breed on Royal Shoal.

The Brown Pelican preys wholly upon fish which it captures by plunging headlong from an altitude usually of from twenty to sixty feet. The prey is taken in a pouch suspended from its lower bill—a receptacle capable of holding about four gallons of water. Except when feeding, the birds often fly in a single file, one behind the other, progressing by alternately sailing and flapping their broad wings.

Fig. 4. Brown Pelican.

In 1918, Pearson made a study of the pelicans gathered in their colonies along the 1500-mile stretch of Gulf Coast from Mexico to south Florida, estimating that the Brown Pelican population of the eastern United States at that time was in the neighborhood of 65,000. Adults were found to vary from 7½ to 11½ pounds—average weight 8.23 pounds. Their food in June, while in attendance on their young, consisted almost wholly of menhaden.

Every summer pelicans to the number of perhaps 200 or more come up the coast from Florida to sojourn for a few months in the waters of Core and Pamlico

North Carolina State Library
Raleigh

Sounds. H. H. Brimley frequently has seen them early in the season at New River Inlet. One of his notes reads: "Off the mouth of New River, May 24, 1920, I saw 38 Brown Pelicans in groups of 18, 12, and 8. All were flying northward just beyond the surf." Cottam speaks of seeing 42 at Hatteras Island, June 24, 1933. In 1939, H. H. Brimley and Pearson found one in Core Sound near Cape Lookout, on June 13. Four days later they saw 3 on Royal Shoal, and 50 on Flouder's Slough Rock. On June 21, while visiting the Hatteras Lumps in Pamlico Sound with Walker and Grover Quinn, Jr., they counted about 100 of these birds.

In 1929, William L. Birsch, Federal Conservation Agent, made the interesting discovery that 14 pairs of pelicans were breeding on Royal Shoal. He photographed the white eggs lying on the bare ground, and later determined the fact that young were raised to maturity. This is the only time Brown Pelicans have been known to breed in North Carolina.

An interesting example of the way a salt-water species may at times wander inland is that of a Brown Pelican appearing in Durham County in 1912 (H. H. Brimley).

☆ There are 22 new records. Winter records are for the Wilmington area (December and January), Ocracoke (January, 1943) and Core Banks, near Davis, (December 5, 1954). An inland record is for Monroe (June 1, 1940).

Another nesting record is for Shell Castle Island, in Ocracoke Inlet. Robert Wolff found 30 nests and 33 young birds in the colony in August, 1947. ☆

Family **SULIDAE**. Gannets.

Totipalmate swimmers with bill slightly hooked, neck and tail moderate in length, and with lores and part of throat naked. This family numbers eleven species but only one is known to come to North Carolina.

Genus **MORUS** (Leach).

GANNET.

Morus bassanus (Linnaeus). [117]

Description. Adult: white; head and neck slightly yellowish; primaries dusky. Immature, head, neck, and upperparts brownish. speckled with white; underparts white. Feet black. Length 3 feet; spread about 6 feet. Weight, 7 pounds.

Range. In North America nests on ledges overlooking the sea in the Gulf of St. Lawrence, and on rocky isles near southern Labrador. Winters from the coast of Virginia southward to Cuba and Mexico. Confined to the offshore regions of the continental shelf. Not a mid-ocean species.

Range in North Carolina. Inhabits the waters off our coast in winter. Sometimes enters the sounds.

Gannets are large seafowl that in winter frequent our shores. Often they appear in small straggling flocks or may fly in single file. With outstretched necks they cruise rapidly along at a height of forty feet or more. Upon discov-

ering a mass of herring, or other shoaling fish, with closed wings they will plung headlong into the sea with a great splash. That they are able to withstand the impact of such terrific contacts is doubtless due to their great assemblage of subcutaneous air-cells, some of which are of large size. This entire air-cell system is connected with the lungs and the bird can thus empty or inflate its pneumatic cushions at will.

The Gannet has long been famous in story and literature. The Anglo-Saxon Chronicles of a thousand years ago tell of the Solan Goose. This is one of the "geese," by the way, which early writers averred is hatched from barnacles!

There are many records of the Gannet being seen in the waters adjoining our State, these ranging from November to April 1. One was taken near Hatteras, February 10, 1930, that had been banded at Bonaventure, Canada, August 8, 1928. On January 17, 1932, Royal saw the largest flock of which we have record. He estimated that a group of 200 flew from Core Sound to the sea near Beaufort. S. A. Walker considers them regular winter visitors around Oregon Inlet and Pea Island, their abundance varying with that of the menhaden, or "fatbacks" upon which they feed. On March 21, 1938, he estimated three thousand in the fifteen miles from Oregon Inlet to Sand Ridge.

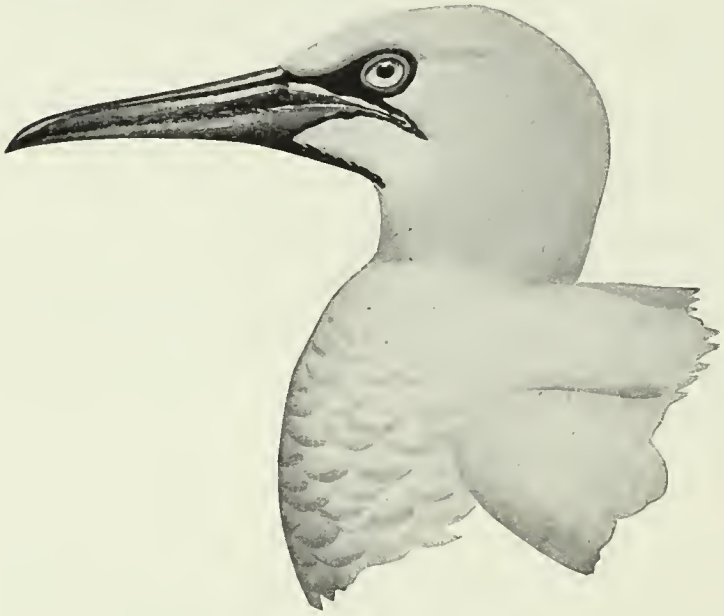


Fig. 5. Gannet.

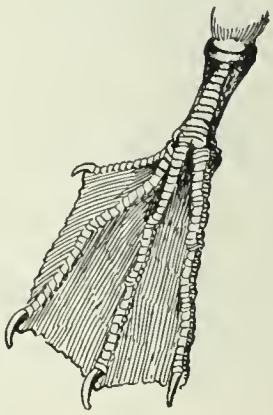


Fig. 6. Foot of Gannet.

☆ We have added 22 records at 7 coastal points, as far south as Southport. Extreme dates are at Wrightsville Beach, August 20th and May 26th. Large numbers have been seen at Pea Island (December). Here, for many days after a storm (February, 1952), some dead and disabled birds were found along the surf. They were coated with oil and tar. ☆

NOTE: Three birds allied to the Gannet are the Atlantic Blue-faced Booby (*Sula dactylatra dactylatra*), the Brown or White-bellied Booby (*Sula leucogaster leucogaster*), and the Red-

footed Booby (*Sula piscator*), all of which breed in the West Indies and on rare occasions wander to the United States. A straggler of any of these species may possibly appear on our coast any winter.

Family **PHALACROCORACIDAE.** Cormorants.

Cormorants are large black, or dark-brown, goose-like birds, with short legs, long neck and stout beak tipped with a very sharp, and doubtless very useful, hook. Their plumage in the adult stage usually is black with bluish-green reflections, although some species show white underparts. They capture the fishes upon which they prey by diving and outswimming them in their own element. In parts of China and Japan they are tamed and trained to capture fish for their masters. In common with most of the species of this order, the young are fed from the throat of the parents into which they aggressively thrust their beaks.

Cormorants are widely found throughout the world. Wherever large rivers or sizable lakes occur they may appear and in the aggregate their numbers are very great. Off the coast of Peru, something like one hundred million are supposed to resort to the far-famed Guano Islands. More than fifty forms are known of which ten occur in North America. Two varieties of one species are found in this State.

Genus **PHALACROCORAX** Brisson.

DOUBLE-CRESTED CORMORANT.

Phalacrocorax auritus auritus (Lesson). [120]

Description. Adult: head, neck and shoulders black, often with greenish reflections; back coppery brown. Feet webbed between all the toes. Upper bill sharply hooked at tip. Length varies, but averages about 30.00 inches. Immature: more brownish. The "crest" consists of a few curly filaments above and back of each eye. These disappear soon after nesting operations begin.

Range. Breeds from Newfoundland and Alberta southward to Maine and Illinois. Winters from Virginia to the Gulf Coast.

Range in North Carolina. Chiefly coastal region in winter. Time of arrival and departing as yet undetermined.

The Double-crested Cormorant is a rather long-necked, heavy, blackish bird that may be encountered in the lower reaches of our larger rivers or in the sounds. Sometimes they are seen swimming, with bodies submerged and only the back and neck showing above the water. More often they are found perched on buoys and channel stakes. They feed on fish, procuring these occasionally by plunging, but more often by diving and outswimming their prey in its own element. Fishermen dislike them, for at times they get into their pound nets and create some havoc.

Authorities generally agree that most, if not all, of the cormorants seen in North Carolina in winter are referable to the race known as Double-crested.

There is one incident of a very positive nature that is well worth recording. On October 18, 1923, a cormorant was taken at Cape Hatteras that bore a band No. 204756 which had been placed on its leg at Saguenay County, Quebec,

July 13, 1923. This specimen, therefore, was positively a Double-crested. Probably also were those found at Chapel Hill, November 5, 1933 (Odum), and at Raleigh, October 31, 1938, as reported by Quay.

Fig. 7. Double-crested Cormorant.

☆ In the absence of definitive measurements we cannot be certain about the occurrence of this and the Florida Cormorant. We can only assume that most mid-winter records are for this race, and there are a score and more of such records. ☆

FLORIDA CORMORANT.

Phalacrocorax auritus floridanus (Audubon). [120a]

DESCRIPTION. Same as Double-crested Cormorant, except averaging smaller. Length about 27.00 inches.

RANGE. The A. O. U. *Check-List* (1931) records these birds as breeding "In Florida, Louisiana, North Carolina, Bahamas and Ilse of Pines." Pearson found three colonies of nesting cormorants on small islands off the north coast of Cuba, 400 miles east of Havana, in May, 1924, that probably were the Florida subspecies. The bird winters throughout most of its breeding range.

RANGE IN NORTH CAROLINA. Breeds in Craven County, and unmated birds in summer have been known to roost in groups in Craven, Onslow, and Brunswick Counties. The status of this subspecies in winter is not definitely known, but generally they are supposed to move southward at that season.

In the summer of 1898, Pearson heard that "Nigger Geese," or "Bogue Sound Lawyers," were breeding at Great Lake, which is in an uninhabited region of Craven County. He went to the lake on May 25. One hundred and fifty occupied cormorants' nests were found in scattered, stunted cypress trees growing in the water near the heavily forested shore. One tree held thirty-six nests that

contained eggs or young. It was noted that climbing about the limbs, the young used their hooked bills as well as their feet.

Among the material Pearson collected for a habitat group in the State Museum were several adult cormorants. Their measurements were confusing, as these varied from those given for the small Florida form to those which were supposed to be characteristic of the larger Double-crested variety. He appealed to Robert Ridgway of the Smithsonian Institution and was told that it would be best to call them Florida Cormorants. P. B. Philipp visited the colony on June 18, 1909, and gave the number of nests in use as 123. H. H. Brimley found 159 occupied nests there in 1911.

Through the years the colony has several times shifted its nesting site as the trees that are occupied are killed by the excrement of the birds. Eels constitute a considerable portion of this cormorant's food in the nesting season as attested by the fragments of eels found in the nests, on the limbs, and in the semidigested material disgorged by the young when disturbed. Scallop shells also have been found in, and beneath, the nests. Apparently the birds fly about 10 miles to Bogue Sound to get their food.

As guests of Dr. Ben Royal, of Morehead City, Davis and Pearson made the somewhat laborious but extremely interesting trip to Great Lake on June 11, 1939. The cormorant colony was found to be occupying eight isolated trees near the south side of the lake. But the number of breeding birds had sadly decreased. There were only 41 nests, on 33 of which birds were sitting. They naturally flew as we approached, and although our stay was very short, two Fish Crows were seen to alight on nests and depart each with an egg on its bill. This is the only known colony of breeding cormorants between Florida and Maine.

Summer records for cormorants (presumably *floridanus*) have been made inland on a few occasions. For example, Durham, June 11, 1932 (Seeman), and Chapel Hill, May 21, 1933 (Odum). A male, in the brown plumage of the immature, was taken on Neuse River, near Raleigh, by W. A. Simpkins, on June 16, 1913.

☆ With uncertainty as noted above, we can cite one of the many records as a Florida Cormorant collected at Cape Hatteras on February 5, 1900. The many summer records must be of this race, as are the nesting birds. At the historic nesting site in Great Lake, there were 35 nests in 1948. In 1953 nesting was recorded in Lake Ellis. In June, 1956, a visit to Great Lake disclosed no nesting cormorants, and one cypress in Lake Ellis had 9 active nests. ☆

NOTE: The European Cormorant (*Phalacrocorax carbo carbo*) a somewhat larger bird than the Double-crested, today breeds in America from Greenland to Cape Breton Island, Nova Scotia. It is found coastwise to New York and casually to South Carolina. Some individuals perhaps appear in North Carolina waters.

Family **ANHINGIDAE.** Darters.

Four species are known, one of which comes to North Carolina.

Genus **ANHINGA** Brisson.

WATER-TURKEY.

Anhinga anhinga leucogaster (Linnaeus). [118]

DESCRIPTION. Plumage glossy black with greenish reflections, streaked and spotted on back, scapulars and lesser wing-coverts; median and greater wing-coverts silvery gray; female with head, neck and breast brownish; immature birds mostly brown. Length 34.00; expanse of wings about four feet; tail 10 to 11 inches; bill, slender and sharply pointed.

RANGE. Tropical America from North Carolina, Arkansas and Texas, southward to Argentina. Winters from Georgia and Arkansas southward.

RANGE IN NORTH CAROLINA. Fresh-water lakes and swamps of the low coastal region.

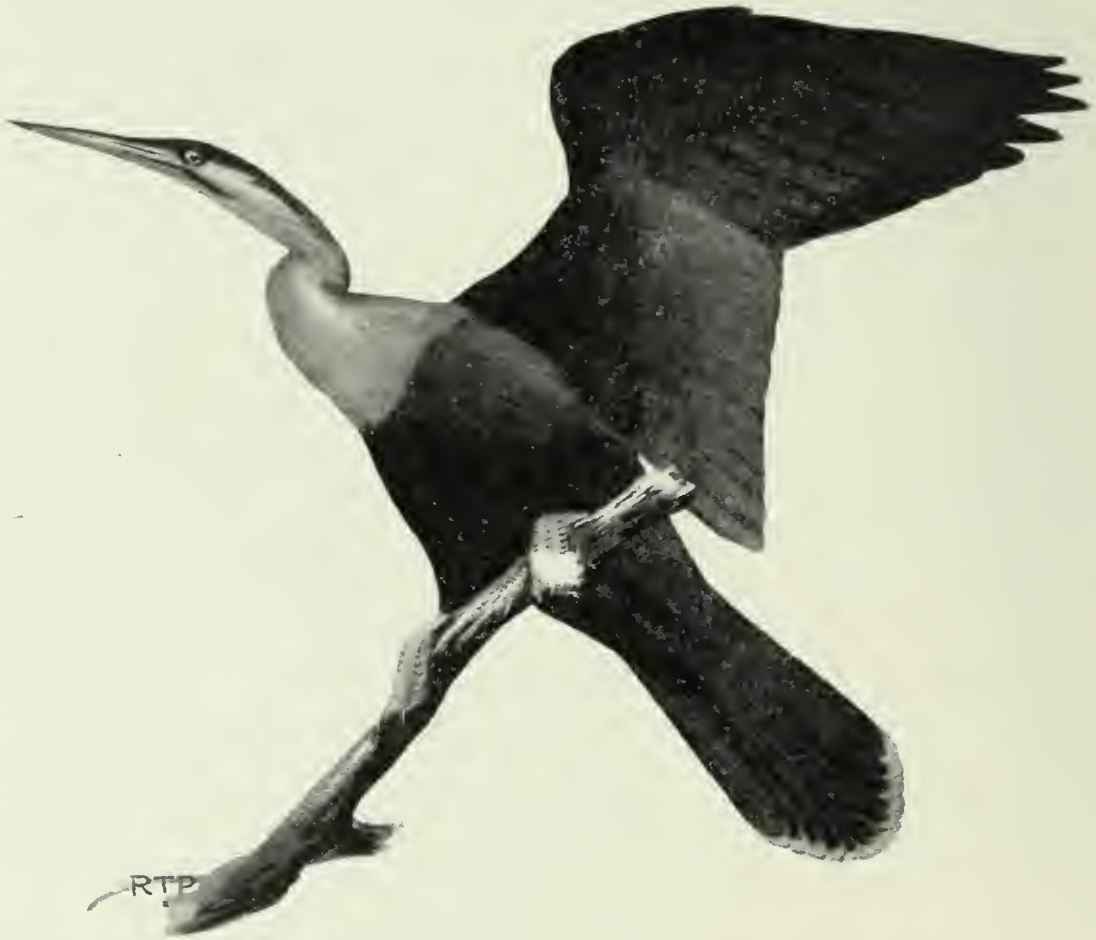


Fig. 8. Water-Turkey.

The earliest North Carolina record we have of that odd-looking and weirdly acting bird, known as the Water-Turkey, was on June 7, 1898, when Pearson, while on Orton Pond in Brunswick County, flushed a male from its nest in a small cypress tree. The nest was a very substantial affair of sticks and was lined with gray moss and a few green cedar twigs with leaves. He shot the bird, collected a section of the tree with its nest, and the four white eggs, and sent them to H. H. Brimley, who mounted the material in a group that is in the State

Museum. Five years later Pearson again searched this area and saw three birds, but found no nests. On June 3, 1926, a freshly killed male was sent to the State Museum from Carteret County.

However, our first record of a breeding Water-Turkey stood alone for thirty-three years. At the end of that time, Robert P. Allen, on a visit to Orton Pond, on May 21, 1931, not only saw "six or eight" of the birds but found two of their nests, both containing eggs. Evidently there was a general northern movement of Water-Turkeys about 1931, for records of their occurrence in North Carolina began to multiply. On November 28 of that year, H. H. Brimley saw one on New River, and a week later, H. T. Davis noted one in the same region. The next year (1932), Royal discovered half a dozen pairs nesting in the cormorant colony at Great Lake, Craven County; and Davis found a bird on New River in May, and another in October. About the same time one was sent to the State Museum from Bertie County. Passing to 1935, Churchill Bragaw then reported a nest in Beaufort County; Clyde Council found one in Bladen County, and Greene noted a bird at Lake Mattamuskeet, in Hyde County, on September 4. Bragaw and others found Water-Turkeys against nesting in Orton Pond in May, 1939. From the above testimony, therefore, it would seem that we may regard this species as a well-established summer resident in the State.

Like a cormorant, the Water-Turkey swims beneath the water to capture the fish which constitute its chief diet. After a dive it often climbs out on some snag or flops up to a limb, and stands for a time with wings widely expanded while the sun dries its plumage.

At times only its long slender neck is seen above the water, which suggests the name "Snake Bird." In some sections it is supposed to be the "Whang-doodle" which Negroes of the deep South solemnly aver "mourneth for its first born."

☆ Fifteen more records of this bird have been made from coastal localities extending from Lake Ellis to Southport (March 8th-January 20th), and inland to Lennons Marsh, Mount Holly (May 4th), and as far North as Rocky Mount (September 23rd). Groups were larger after nesting periods.

In 1947 J. L. Stephens reported them nesting in large numbers at Lennons Marsh near Lumberton. Pearson stated that when he visited this marsh in July, 1943, there were more Anhingas present than any other place north of Florida. ☆

Family **FREGATIDAE.** Man-o'-war-birds.

Genus **FREGATA** Lacepede.

MAN-O'-WAR-BIRD.

Fregata magnificens rothschildi Mathews. [128]

Description. Black, entirely so in adult male. Female similar, but browner and with breast and upper belly white, immature birds have whole head and neck white. Length 40.00; spread of wings, 7 to 8 feet; tail 17.00; bill 4 to 5 inches, sharply hooked at tip.

Range. Tropical and subtropical seas. Stragglers have been found as far north as Nova Scotia and inland to Kansas.

RANGE IN NORTH CAROLINA. Occasional off our coast in summer.

The Man-o'-war-bird, or Frigate Bird, is one of the most marvelous fliers in the world. With its amazingly long wings it sweeps the seas in quest of food or for diversion. The fish it eats are picked from the waves as it sweeps low over the water. Now and then it forces weaker birds to disgorge their recent meal, which it promptly appropriates.

Fig. 9. Man-o'-war-bird.

On July 5, 1899, Pearson took a specimen in Pamlico Sound near Ocracoke Inlet. It was a splendid young male, measuring seven feet and seven inches between its wing-tips. Its mounted skin is preserved in the State Museum in Raleigh. This was our first North Carolina record of the Man-o'-war-bird. Eighteen years later, on July 10, 1917, R. J. Coles, of Danville, Virginia, while cruising near Cape Lookout, rescued one from the sea in an exhausted condition. Its wing spread was seven feet and four inches.

It was sixteen years after this event that the Man-o'-war-bird was again recorded in our territory. In September, 1935. "scores" of them were observed, by various

people, flying over Southport following the hurricane winds that had been blowing from the south, and Samworth has seen the bird near New River Inlet.

S. A. Walker saw one January 30, 1939, while crossing Oregon Inlet on the ferry. The bird flew into the inlet from the sea, changing its course to come within fifty yards of the ferry, and continued westward into the sound.

These birds do not breed in the United States but are regular summer visitors on our more southern coasts. . . .Man-o'-war-birds appear never to alight on a level beach, and it is very doubtful if their extremely long wings would enable them to rise from a flat surface. The feet are small and weak, and the birds are rarely known to swim or to rest on the water.

☆ We add 10 records for 8 coastal localities, from Pea Island to Southport, and all were in the summer season. ☆

Order **CICONIIFORMES.** Herons, Storks, Ibises, Flamingoes, and Allies.

Wading birds with the legs and neck long; the loral region at least, and sometimes the whole head, bare of feathers. Hind toe well developed and usually on a level with the rest.

Family **ARDEIDAE.** Herons and Bitterns.

The herons, as a group, are long-legged, long-necked birds often referred to in North Carolina as "Cranes." As a matter of fact, there is no positive record of any crane having been found in the State during modern times.

Herons have from 15 to 17 vertebrae in the neck, these being so arranged that an S-shaped curve of the neck may be readily assumed. Except when about to alight, or when taking flight, the neck is seldom extended. In flying the head is drawn back near the body, thus giving the appearance of a short-necked bird.

The lower part of the legs and tarsi of herons are destitute of feathers. The toes are four, one of them extending rearward. The outer two of the others are usually connected with a small basal web.

Herons in North Carolina build their nests of sticks and twigs in trees or stout bushes, and most of the species breed in colonies. The eggs are bluish or greenish, and are unspotted. When hatched, the young are naked and helpless and are fed by regurgitation. When old enough to leave the nest they use their wings to aid them in climbing about the limbs.

Herons are not known to carry food grasped either in their beaks or in their feet. They feed upon fish, small reptiles, insects and other small forms of life found in shallow waters or on the soft ground in the vicinity. They seize their prey with their long, sharp bills, often first spearing larger fish to disable them. Occasionally some individual heron may become objectionable by its frequent visits to the pools at a fish hatchery, but with these exceptional occurrences herons cannot be considered as injurious to man's interest.

Herons are widely distributed over the globe in temperate and tropical countries. Only those of the colder parts of their range migrate upon the approach of cold weather.

Something less than 100 species are known; of these eight have been found in North Carolina—or ten, if we include the two bitterns.

The true herons all have elongated plumage growing on the back during the breeding season. A few also are adorned with occipital plumes. The long slender feathers growing on the back of the American Egret and the Snowy Egret were long sought by the plumage trade, and under the French name, "aigrettes" were used as adornments for women's hats. As a result of persistent persecution by plume hunters, both species had become very scarce in North Carolina twenty years ago. Happily they are now protected by both State and Federal laws and due to the enforcement of these statutes and the growth of public sentiment against the wearing of birds' feathers for personal adornments, the numbers of egrets have greatly increased of recent years.

There is a peculiarity in the plumage of some birds such as parrots, tinamous and frogmouths that is especially developed in the herons. This is the so-called yellowish "powder down" patches found on the breast and the pelvic regions. The greasy talc-like powder here produced is formed by a disintegration of the lamellae and barbules into which the shafts of certain clusters of feathers are continually splitting. These areas do not emit a light useful at night to lure fish to their destruction, as has sometimes been claimed.

There has been much speculation as to the use of the powder down. Alexander Wetmore published his findings on the subject (*The Condor,* Vol. 22, pp. 168-170), and in a letter to us of November 1, 1938, he writes: "Birds that I kept in captivity used the powder in the powder down in dressing their feathers in exactly the same way that the secretion of the oil gland is used. I was satisfied from this observation that this is the function of the powder from the powder down."

Genus **ARDEA** Linnaeus.

GREAT WHITE HERON.

Ardea occidentalis occidentalis Audubon. [192]

DESCRIPTION. White. Measurements usually a little greater than those of the Great Blue Heron. Length from 4 to 4.5 feet; spread about 6½ feet; bill 6 to 7 inches.

RANGE. Extreme southern Florida, the Florida Keys, and southward.

RANGE IN NORTH CAROLINA. Accidental.

This species is as large as the well-known Great Blue Heron, and is much like it in form and movement; but here the similarity ends for its plumage is of snowy whiteness.

These big, white herons are to be found sparingly in Florida, Cuba, Jamaica and Yucatan. Since 1905, the West Indian and Yucatan birds have been regarded as a subspecies, differing somewhat infinitesimally from the Florida bird, which is confined to the southern tip of that State and to the scattered Keys lying in the shallow sea between Cape Sable and Key West. Here it gathers its food while wading on the vast submerged flats so common in that region. Associated

with others of its kind, it builds its substantial nest of sticks in the mangrove bushes that clothe many of the innumerable Keys of that semitropical country. . . .

The Great White Heron's place in the list of North Carolina birds is due to the following surprising circumstances. A specimen was shot at Crystal Lake, near Durham, on July 2, 1926. The killer, upon reflection, probably feared the act might get him into difficulty, if it became known, so he buried the body. Ralph Brimley, in charge of a Boy Scout camp there, however, recovered it, had it partially skinned and sent it to C. S. Brimley, who preserved the skin, which now is in the State Museum in Raleigh.

Note: The legs of the Great White Heron are yellow, while the legs of the American Egret, which is also a large white heron, are black.

☆ One more record is for Greensboro on September 6, 1943. ☆

GREAT BLUE HERON.

Plate 5

Ardea herodias herodias Linnaeus. [194]

Description. Nearly uniform bluish-gray above, the underparts broadly striped with black and white. Sides and back of head black, crown and forehead white in adult; immature birds lack the black and white on head and the underparts are less heavily streaked. Length 40.00 to 50.00. Expanse of wings 5½ to 6½ feet; bill 4.30 to 6.25, with sharply pointed tip.

Range. (Including 6 subspecies.) Central Canada to Venezuela. Winters from New York and Ohio Valley southward.

Range in North Carolina. Whole State; summer visitor in mountains. Permanent resident and breeding in coastal areas.

The Great Blue Heron, often known locally by such names as "Big Cranky," "Blue Crane," "Long Tom," and "Poor Joe," is a well distributed species throughout the State, where it haunts open marshes on the shallow margins of lakes and the larger streams. In the eastern half of the State, it may be seen at any season, but in the mountains it is a summer visitor, usually arriving late in March.

About the countryside a story persists that the bird possesses one straight intestine; another tradition gives it credit for bearing a phosphorescent cluster of feathers on its breast, by the light of which fish at night are lured to within striking distance of the long, dagger-like bill.

Like most of the herons, this one usually, but not always, gathers in colonies to breed. The nest consists of a heavy platform of sticks and twigs placed generally on the horizontal limb of some large tree near or over water. The eggs, three to five in number, are similar in color to those of all our herons, being pale, dull blue, and unspotted. Since 1898, we have known of colonies of Great Blues breeding in Craven, Carteret, Onslow, and Brunswick Counties.

With little discrimination these birds swallow whole any small creatures they find in the waters or along the shores they frequent, such as frogs, snakes, mice, crayfish, tadpoles, and fishes ranging from minnows to black bass, a pound or more in weight.

While feeding, this species will often wade out to where the water reaches its breast. Pearson records watching several on the Cape Fear River near Orton Plantation, gathering their prey in an unusual manner. From the top of a group

of pilings standing well out from the shore, the birds, one at a time, would alight on the water and float down stream, striking with their bills meanwhile. After drifting for eighty or one hundred yards, they would rise, fly back to their perches and repeat the performance.

In 1939, we knew of only two breeding colonies in the State. One, composed of possibly 40 pairs, was situated in tall cypress trees on Orton Pond, Brunswick County. When visited by C. S. Brimley, Davis, Grey, and Pearson, on May 2, many young were seen. Craighill and companions, on June 7, examined a colony in Bertie County, where they counted 58 occupied nests, 23 of which were in one giant cypress. Other trees occupied by the birds held from 3 to 8 nests each. The colony was deep in a heavy swamp and the nests were "scattered over an area half a mile in diameter."

☆ There are numerous new records from the whole State in nearly all seasons. In the Smoky Mountain Park there are December and January records.

These birds nest extensively near the coast as far as Lumberton. On April 2, 1897, Howard Wiswall climbed to a nest 85 feet up in a cypress tree, in Beaufort County, to take 5 eggs.

One was observed feeding in the surf at Bogue Banks, and another at Raleigh plunged from 30 feet up to hit the water for food. ☆

☆ WARD'S HERON.

Ardea herodias wardi Ridgway. [194b]

DESCRIPTION. Similar to the Great Blue, but averaging larger in size. Length: 48:00-52:00 inches; wing 19:75-20:50 inches. In color it differs from the Great Blue in being paler, with whiter lower parts, darker neck, and with olive instead of black legs.

RANGE. Breeding range includes southern Florida, the Gulf coast, and southern Texas north to southeastern South Carolina, southeastern Iowa, and Kansas. Winters from Texas, Alabama, and Florida south to Central Mexico.

RANGE IN NORTH CAROLINA. Casual in the southern coastal area.

Occasionally this Heron may wander north of its general range. Its inclusion in the North Carolina list is based upon a record of one seen at Wilmington, December 15, 28, and 29, 1946, by Edna Appleberry, Mary Baker, and Dr. Thomas Hall. ☆

Genus **FLORIDA** Baird.

LITTLE BLUE HERON.

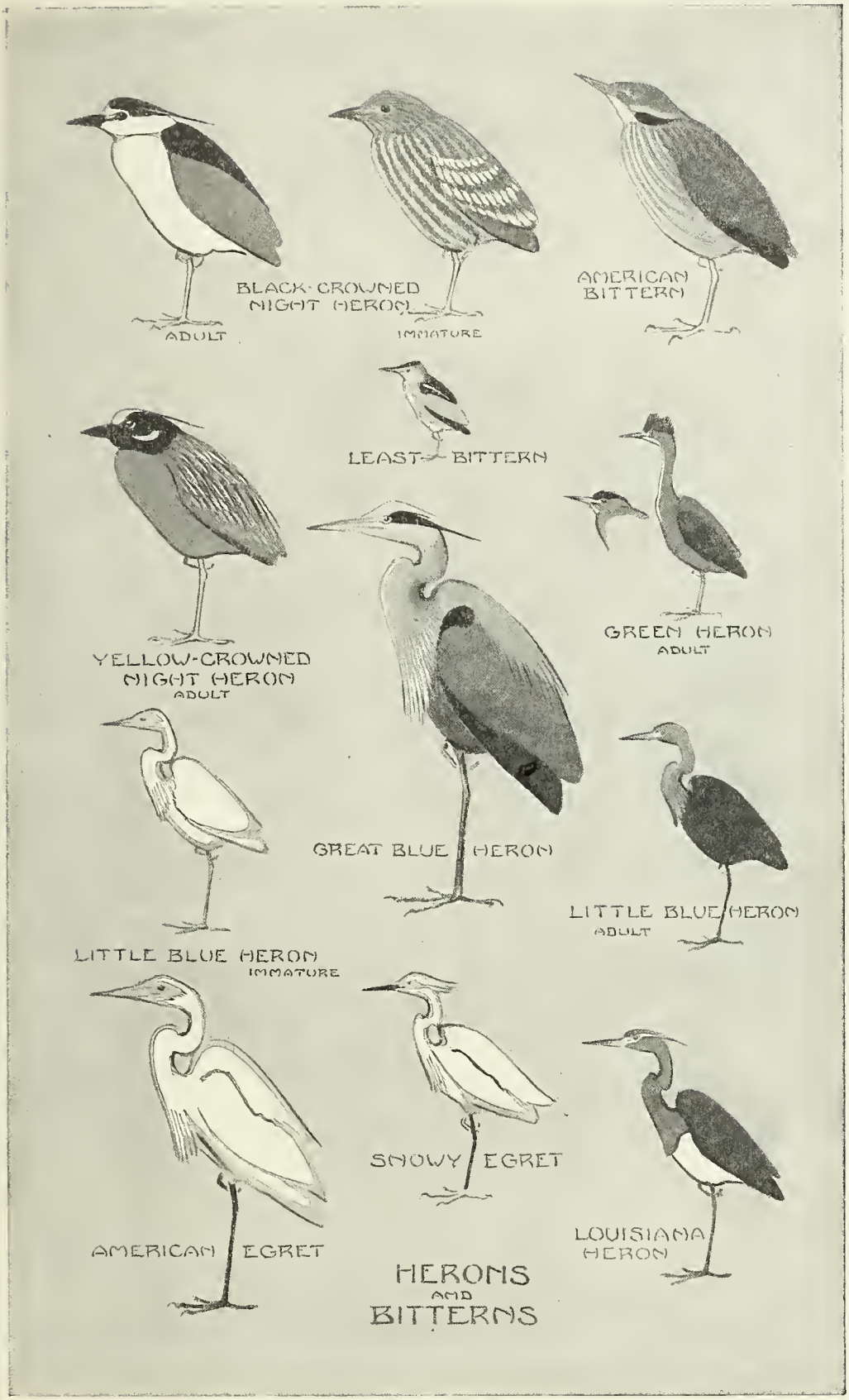
Plate 5

Florida caerulea caerulea (Linnaeus). [200]

DESCRIPTION. Uniform dark slate-blue with maroon colored head and neck; immature birds white with bluish slate color on tips of primaries. The blue plumage is acquired *gradually*, generally during its second summer. Length 22.00; wing 10.00.

RANGE. Known to breed in Delaware, New Jersey, Arkansas, southeastern Virginia and southward to Central America. Winters from coast of North Carolina southward.

RANGE IN NORTH CAROLINA. Coastal region in summer. After the breeding season many are found inland until autumn.



Courtesy of Roger Tory Peterson

One of the most abundant herons of the State is the Little Blue, which is one of the so-called "Scoggens" of the eastern counties. In July and August, it is not uncommon in central North Carolina where it feeds in marshes, along sluggish streams, and about mill ponds with shallow margins. Often it appears in small flocks which the uninitiated may assume to be comprised of three different species, as some are blue, others white, and still others may be seen with blue patches mingled with the white plumage. These two latter forms are immature birds that have not yet acquired their adult plumage.

This species breeds in colonies, often with other herons, chiefly in counties along the coast, although they do not often feed in salt water. The farthest inland that a breeding group has been noted was near Red Springs, Robeson County, ninety miles from the coast, where forty pairs were seen by Pearson in 1905. On April 30, 1898, he found a colony of 75 on Lake Head Island, Mattamuskeet Lake. Clutches of 4 or 5 eggs were in all the nests examined.

According to Waters Thompson, since 1928 a mixed assemblage of herons has been breeding on a little island in the estuary of the Cape Fear River, within sight of Southport. On June 14, 1938, H. H. Brimley estimated the population of adults at 600. Five species were nesting in the yaupon and scrubby cedars. One of these was the Little Blue, with about 175 individuals. A colony with 16 nests, containing eggs, was found on Great Lake, Craven County, June 15, 1909 (H. H. Brimley). Every egg was that day destroyed by Fish Crows.

In 1935 and '36, approximately 100 pairs of these birds built their nests in the yaupon and other bushes of a marsh near Buxton at Cape Hatteras (E. L. Green, Jr.). Davis examined a general heron colony containing Little Blues on Middle Marsh, Carteret County, July 4, 1938. A nesting group was discovered by G. B. Lay, in August, 1937, near Quitsna, Bertie County. Craighill and Grey visited it July 5, 1938. The nests numbered 540, and all were in trees growing on dry ground.

In 1939, Craighill returned to this place on June 7, and with the assistance of four young men made an extensive investigation. He wrote: "I put the colony at 700 nests, and about 3,000 individuals. I think this a conservative statement." He also reported that at one place they "counted 26 nests in an area 25 feet square." Although Little Blues have been supposed to leave the State in winter, Samworth, on February 17, 1939, saw one adult and four in the white plumage at New River Inlet, Onslow County.

Burleigh reports these birds as common summer visitors in the Asheville region. Extreme dates, July 1 (1933) and September 17 (1930). With a single exception, all he has seen here were in the immature plumage.

Breeding colonies at Orton Pond, Brunswick County, and near Lenoxville, Carteret County, were occupied for many years, until deserted after 1938. Summer assemblages formerly existed at Jones' Mill Pond, Craven County, and in Mattamuskeet Lake, Hyde County, but later these were abandoned. On June 13, 1939, H. H. Brimley and Pearson examined a mixed colony of herons, on an island in Newport River near Beaufort, that had been known for some years. Perhaps 75 pairs of Little Blues had young in and about their nests.

☆ We add 53 records which show that some of these birds winter around Wilmington, Lake Mattamuskeet, and Pea Island. Inland records are from Raleigh (December 29th), through September at Henderson, Charlotte, Hendersonville and Elkin.

New nesting records are for Lennons Marsh, and a large colony near Plymouth was abandoned due to timber cutting in 1953. An 1890 record by Smithwick is for Bertie County. ☆

☆ Genus **BUBULCUS** Bonaparte.

CATTLE EGRET.

Bubulcus ibis ibis Linnaeus. [200.1]

DESCRIPTION. Resembles the Snowy Egret ar immature Little Blue Heron in size, but is stockier and stands more erect. The adults have a yellow iris; stout yellow to orange bill; yellowish legs (tibia); tarsi and toes olive; claws olive brown; with tawny ta buff on neck, back, and breast. The buffy dorsal plumes, top of head, and breast patch are slightly darker in the females than in the males. The legs in the breeding season appear to be saffron yellow, and dark to olive in winter, and the plumes are nat as curved or as filmy as in the Snowy Egret and other Herons.

RANGE. Distributed over Southern Europe, Western Asia, and Africa. Found in South America. In North America it has been recorded for Newfoundland, Maine, Massachusetts, New Jersey, Illinois, Maryland, Virginia, South Carolina, North Carolina, Florida, and Bermuda.

RANGE IN NORTH CAROLINA. Bladen and Brunswick Counties. Breeding record for Brunswick Caunty (Battery Island).

The Cattle Egret is a well known and rather common bird in Africa where it is called the Buff-backed or Cattle Heron. Here it is found feeding on the backs of large animals as well as on the ground near animals, where they feed on insects flushed from grasses by the grazing animals. This habit of riding the backs of animals has not as yet been noted in North America. It made its appearance in Venezuela in 1930 and spread in and from South America. It was found in the United States for the first time in Florida on May 12, 1952. The first nest was located at Lake Ocheechobee in May 1953, and now there are about 750 nests in Florida and some 4,000 birds. Their similar nests are in similar situations as those of the Snowy Egret. The eggs appear lighter in color than those of the Snowy and herons.

The first specimen was collected in North Carolina at Kelly, Bladen County, on April 29, 1956, by David Adams. In June 1956 two nests were found on Battery Island, Brunswick County, in a colony of other Herons. ☆

Genus **BUTORIDES** Blyth.

EASTERN GREEN HERON.

Plate 5

Butorides virescens virescens Linnaeus. [201]

Description. Top of head greenish-black, rest of head and mast af neck chestnut; throat and foreneck streaked with white; back with lengthened green scapular feathers,

more or less washed with bluish-gray; wing-coverts green; underparts plain grayish. Length 17.00; wing 7.25.

RANGE. North America, breeding from Nova Scotia and North Dakota southward to Central America. Winters from the coast islands of South Carolina southward.

RANGE IN NORTH CAROLINA. Whole State in summer, arriving in late March or early April and remaining at least until October.

The Green Heron, also known as "Fly-up-the-creek," "Indian Hen," "Shite-poke" or "Skeow," is the smallest of the true herons and is found all over the State during the summer months. Unlike most of the heron family, it does not often nest in colonies but usually as individual pairs. The flimsy nests made of sticks and twigs are placed in trees or bushes and usually in the neighborhood of water, but sometimes in apple trees, cedar thickets, and other places at some distance from any stream, pond or marsh. The eggs are pale blue, resembling those of the other herons, but smaller. April or May are the principal breeding months.

This bird frequents the shore lines of ponds and streams of all sizes and exhibits little of the gregarious habits of other herons. It feeds on fish, frogs and other small forms of aquatic or semiaquatic life. Its ordinary note is the usual heron "squawk" given when it is startled or otherwise excited. When alarmed, the long feathers of its head and nape are often raised, forming a noticeable crest. As examples of their rare colonizing tendencies, it may be mentioned that Pearson, on April 15, 1898, found three nests in a little clump of cedars near Lake Landing, Hyde County, and on June 7, 1939, six or eight pairs with eggs or young were discovered in Brunswick County. The nests were built from five to seven feet from the ground in a dense cluster of wild plum trees on a dry portion of Bald Beach north of Little River Inlet.

☆ New records show that this bird nests throughout the central and eastern parts of the State. Some stay through the winter along the coast and to some extent inland. ☆

Genus **CASMERODIUS** Gloger.

AMERICAN EGRET.

Plate 5

Casmerodius albus egretta (Gmelin). [196]

DESCRIPTION. Wholly pure white, the adult with long dorsal plumes from early spring until mid-summer. Length 37.00-41.00; expanse of wings 4½ feet or slightly more; bill *bright yellow,* 4.50 to 5.00. Legs and feet black.

RANGE. Breeds locally from New Jersey southward to Patagonia. Many move northward (even to Maine and Michigan) for a stay of several weeks after the breeding season.

RANGE IN NORTH CAROLINA. Breeds in colonies in the coastal region, where also they occasionally are noted in winter. Found inland somewhat frequently.

The American Egret came very near being extirpated in North Carolina by hunters for the millinery trade, who sought the 40 to 52 long slender "aigrette" plumes that in spring grow on the back between the wings. The Audubon bird-protective laws, and their enforcement of recent years, have permitted the birds again to become quite numerous. On May 2, 1939, C. S. Brimley, Davis, Wray,

and Pearson visited a well-known breeding group of about fifty pairs in Orton Pond, Brunswick County, where many young birds were seen. No other breeding colonies were recorded that season, although as late as 1938, some were present in one or more heronries in Carteret County. The nest and eggs resemble those of the Great Blue Heron, but are smaller.

Samworth writes that a few remain in Onslow County during the winter, and Greene made a similar report for the Mattamuskeet Lake region. Wanderers are found well inland chiefly during mid-summer.

The Brimleys have recorded their presence in Wake County at intervals over a period of more than fifty years. The earliest spring date for this species here was April 7 (1927) and the latest was November 25 (1938). Odum found individuals at Chapel Hill on several occasions of recent years at dates ranging from July 2 to September 19. Mrs. Robert D. Douglas reported the species in Guilford County in June and August, 1934, and again in the summer of 1938.

Burleigh has written from Buncombe County: "A single bird was seen at the bass ponds near Swannanoa, July 12, 1930, and two were noted July 27, 1933, one at the lake in Recreation Park and the other at the bass ponds, the latter bird lingering about these ponds until August 14."

☆ New records are numerous for all the year along the coast. Inland records are from March to October 16. Mountain records are for Asheville (August 28), Highlands (August 26), Windom (July 13) and one in Yancey County (July 24).

Nesting is extensive in our southeastern coastal region, frequently in colonies with other herons. ☆

Genus **LEUCOPHOYX** Sharpe.

SNOWY EGRET.

Plate 5

Leucophoyx thula thula (Molina). [197]

DESCRIPTION. Wholly pure white at all seasons; the back in spring and summer adorned with a cluster of about fifty dainty recurved plumes, also elongated feathers on back of head and upper breast. Bill and *legs black; feet yellow*. Length 24.00; spread 3 to 3.50 feet.

RANGE. Breeds regularly from North Carolina, Louisiana, and Texas to Chile and Argentina. Winters from Florida and Louisiana southward.

RANGE IN NORTH CAROLINA. Coastal region in summer, rare inland.

There was a time when the fifty plumes from the back of a Snowy Egret found ready sale at $1.25, and buyers for the New York millinery trade were eager for all they could procure.

Formerly an abundant species in the swamps and marshy regions of the south Atlantic and Gulf States, its slaughter during the breeding season, over a period of some twenty years, brought it to the verge of extirpation.

When in the spring and summer of 1898, Pearson engaged in studying the bird life in the coastal regions of North Carolina, he was unable to prove that the Snowy Egret was still found in the State. His field work covered the lakes, swamps and coast lines from Elizabeth City in Pasquotank County southward to

the South Carolina line. The period was of four months' duration, beginning with April 10; yet not one Snowy Egret could he find either on the numerous feeding areas used by herons, or in any of the heronries located. Six years later, in June, 1904, in the heron rookery in Orton Pond below Wilmington, he saw eight pairs of them nesting. In the same colony he and H. H. Brimley, in June, 1908, found about fifteen pairs.

In May, 1917, Pearson visited Crany Island on Core Sound, about eight miles from Beaufort, to look over a colony of herons he had seen nine years before. Here about thirty pairs of nesting Snowy Egrets were found, which extended the known breeding-range some ninety miles northward from the Orton colony. A warden was at once employed. In 1926 all herons deserted this breeding ground and re-established themselves at Lenoxville near Beaufort. When, on June 30, 1938, H. H. Brimley and Pearson went to the colony, Warden Godwin estimated the Snowy Egrets at 50 pairs. No herons or egrets returned to this place in 1939.

For some years a heron colony has occupied the trees on a small island in Newport River near Beaufort. H. H. Brimley and Pearson, on June 12, 1939, found it to contain nests to the estimated number of 200. Possibly two dozen pairs of these were Snowy Egrets. Young birds were climbing about the limbs. On May 6, 1939, Clifton Wilson, of Calabash, Brunswick County, led Davis and Pearson to Gum Pond, three miles distance, where he said herons gathered to nest every year. Only a few birds were present, some which were Snowys. In 1938, Waters Thompson reported that for ten years herons had been breeding on Battery Island near Southport. On June 14, H. H. Brimley, Davis, and Allan Keen, accompanied by Thompson, went to the island and reported twenty Snowy Egrets present. We know of no other breeding groups of these egrets in the State at the present time.

Scattered individuals or small groups are seen in summer at various points in the coastal country. Walker considers them common post-breeding migrants at Pea Island and records them from June 6 to October 17. In August, 1940, he found only a few birds, but there were 40 present on September 17, and on August 6, 1941, there were 50 birds in a mixed flock of 200 herons. Earle Greene counted 5 at Mattamuskeet, September 28, 1936.

These birds seem to come inland but rarely. Cairns took one near Asheville some fifty years ago; and Odum at Chapel Hill reports "Single birds were observed off and on by all of us between July 15 and September 12, 1933."

Little Blue Herons in the white phase of plumage are often mistaken for this species, hence when attempting to identify any little "white crane," watch carefully for the black legs and yellow feet, for if the bird does not have these markings, it is not the rare Snowy.

☆ Many new records come from 14 coastal points and 4 inland places. They were seen at Wilmington (November, December and February). New inland records are for Davidson County (August 10), Raleigh (July 20 and 29), Greensboro (September 22) and Rocky Mount (July 20).

Nests and young were recorded for Battery Island from 1942 through 1956 (25 pairs), and for Pea Island in 1944, 1945 and 1949. Near

Beaufort 60 nests were reported in 1944 and 1946, and 6 nests in 1956. ☆

☆ Genus **DICHROMANASSA** Ridgway.

REDDISH EGRET.

Dichromanassa rufescens rufescens (Gmelin). [198]

DESCRIPTION. Occurs in a dark and a white phase. In the dark or normal phase the head and neck are rufaus-chestnut splashed with vinaceaus; remainder of plumage is a dark bluish slate calar; and the feet and legs are black. In the white phase all af the plumage is white except far the tips af the primaries which are speckled with grayish. In either phase the field identificatian mark is the flesh-colored bill which is black tipped. Length 29:00 inches.

RANGE. Breeding range includes lower California, southern Texas, and sautheastern Georgia south to Cuba, Jamaica, Yucatan, and Guatemala. Winters from sauthern Florida southward. Casual in Calarada, sauthern Illinois, and Sauth Carolina.

RANGE IN NORTH CAROLINA. Accidental occurrence.

The inclusion of this egret in our fauna is based on a report of one seen on a small lake thirteen miles southeast of Charlotte, July 27, 1947, by G. H. Holmes. Holmes was quite familiar with this bird as he had observed it on numerous occasions in Florida. ☆

Genus **HYDRANASSA** Baird.

LOUISIANA HERON.

Plate 5

Hydranassa tricolor ruficollis (Gosse). [199]

Description. Head, neck and upperparts slaty-blue, darker on head and neck. Adult in breeding season: plumes on back of head mixed with white, on back gray plumes reaching to tail; lower back, rump, throat and *underparts white;* immature birds duller. Length 25.00; wing 9.50.

Range. Breeds from North Carolina to Central America; occasionally migrates in summer as far as New York; winters from South Carolina southward.

Range in North Carolina. Coastal region in summer, some in winter; rare inland.

Beautiful and graceful in the extreme, it is little wonder that the great Audubon, writing a hundred and more years ago, referred to this bird as "Lady of the Waters." Although frequenting fresh as well as salt-water bodies, the Louisiana Heron in North Carolina is primarily a bird of the coastal region and, it appears, rarely wanders far inland. In the territories it inhabits, it is one of the most abundant of the larger waders; therefore, it seems rather singular that its name had not been mentioned in any list of North Carolina birds published before the appearance of the first edition of this book in 1919.

The first Louisiana Heron recorded in this State was on April 20, 1898, when Pearson, while standing near the point of the beach at Cape Hatteras, watched one fly slowly in from the sea. During next three months he found four heronries in which they were breeding. These were situated as follows: one at Jones' Pond, Carteret County; one in a small pond near Shallotte, in Brunswick County; and two on Orton Pond. Perhaps a thousand or more pairs were occupying these

colonies. Eggers broke up the breeding group in the Tom Branch colony on Orton Pond in the summer of 1899.

One popular feeding place for Louisiana Herons today is on the marshes of North River, a few miles from Beaufort. The Lenoxville heronry contained 100 pairs of the birds in 1938, although none returned there to breed in 1939.

At Pea Island, Walker lists them as common post-breeding migrants and has observed them from June 10 to October 17. Grey observed 2 of these birds at the fresh-water pond June 10, 1941, but found no evidences of nesting. They arrived in quantities in late July and early August; H. H. Brimley saw 20 on August 9, 1938, and Walker counted 50 August 6, 1941.

Inland, Craighill found an exhausted bird near Rocky Mount, August 3, 1936. This one, and a specimen seen by C. S. Brimley and Davis at Raleigh, July 7, 1927, constitute our only records for such distances from salt water.

Reports of these birds remaining in North Carolina during the winter months had been vague, or nonexistent, until Samworth, on February 17, 1939, saw a flock, numbering 26, at New River Inlet, Onslow County.

☆ We add 40 records, some of which place this as a winter bird for Pea Island, Wilmington and Southport. Added nesting records are from Battery Island, Beaufort, and Pea Island. ☆

Genus **NYCTICORAX** Forster.

BLACK-CROWNED NIGHT HERON.

Plate 5

Nycticorax nycticorax hoactli (Gmelin). [202]

DESCRIPTION. Adult; top of head, back and scapulars, black; wings, tail and underparts, white; occiput with two or three long white cylindrical plumes which usually are present in the breeding season; immature birds are mostly bluish-gray streaked and spotted, with crown black. Length 24.00; wing 12.00.

RANGE. Breeds from Oregon and Quebec to Paraguay. Winters from the coast of South Carolina southward.

RANGE IN NORTH CAROLINA. Coastal region in summer but recorded every month in the year; occasional inland, at least to Asheville.

The name "Quawk" frequently is given to the Black-crowned Night Heron. The bird's explosive cry, that greets unwelcomed intruders to its nesting or feeding grounds, suggests this name. The same harsh sounds at times are heard at night as the birds fly overhead, often at considerable distance from any known feeding ground.

As a breeding bird, it seemed to have been overlooked in North Carolina until May 30, 1898, when Pearson found two nests, containing eggs, in the Little Blue Heron colony on Lake Head Island in Mattamuskeet Lake. Breeding groups usually associated with other herons have since been found in the counties of Brunswick, Carteret, Craven, Dare, and Onslow. May and June are the usual breeding months. Nests are constructed in the usual heron-fashion of sticks and twigs, and as a rule, are more bulky and substantial than those made by most other herons. The eggs, generally four in number, are pale bluish-green in color, and measure 2.00 by 1.40 inches.

These night herons are found at some time of the year almost everywhere in the State. Among the records inland are: Chapel Hill, March, April, May, and July; Greensboro, June; Raleigh, July and August; and Weaverville and Rocky Mount at various dates.

Their food consists of frogs, snakes, eels, and especially small fish which they sometimes acquire during nocturnal visits to fish hatcheries.

Many of these birds migrate from the north, some to spend the winter, others merely to pay a brief visit before passing on to more southern feeding grounds. It is interesting to note that three Black-crowned Night Herons, bearing leg bands placed on them at Barnstable, on Cape Cod, have been taken in North Carolina at the following places: Currituck Sound, February 3, 1936; Cape Lookout, November 15, 1926; and White Oak River, Carteret County, October 9, 1926.

☆ New records indicate the continued breeding, and winter range, of this heron along our coast. Increased breeding is noted for Pea Island. Thirty-four active nests were counted there on a low salt-marsh area of about 10 acres (July 9, 1953). These were in low, up to 4 feet scattered water-bush and thus not like the usual colony. Eighteen young were banded. Added inland records are from the counties of Wayne (April 28th), Henderson (July), Wake (July 24th), Nash (August 3rd) and Robeson. ☆

Genus **NYCTANASSA** Stejneger.

YELLOW-CROWNED NIGHT HERON.

Plates 5 and 6

Nyctanassa violacea violacea (Linnaeus). [203]

DESCRIPTION. Grayish-plumbeous, darker on back and streaked with black; crown and patch on side of head yellowish-white, rest of head including throat, black; underparts white; head in breeding plumage with long whitish plumes. Immature birds grayish-brown, streaked and spotted. Length 25.00; expanse of wings about 44.00.

RANGE. In summer, North Carolina to Brazil and Peru. Winters from Florida southward, usually breeding in small colonies.

RANGE IN NORTH CAROLINA. Coastal region in summer. Known to have strayed inland as far as Guilford County. Breeds sparingly, and locally.

Retiring in habits, not abundant in this State and seldom seen by day unless disturbed from its roost on some shaded limb, the Yellow-crowned Night Heron has not often been observed by North Carolina ornithologists. We know of the following records during the past forty-five years. Pearson took one in immature plumage in Guilford County, June 13, 1894; C. S. Brimley reported specimens at Raleigh, June 25, 1894, and April 14, 1911. Pearson and H. H. Brimley found one in Brunswick County, June, 1908; H. H. Brimley secured an immature-plumaged bird at Raleigh, August 16, 1936, and Greene saw two adults at Mattamuskeet Lake, March 12, 1936. On July 4, 1932, at Great Lake, Dr. B. F. Royal, of Morehead City, shot and skinned a specimen. It was seen in company with five others, and the presence of several bulky nests, of stout twigs, built on the

limbs of a tall pine from which the birds flew, naturally caused him to suspect strongly that these herons were breeding at this point.

It remained for Craighill to report positive evidence that the Yellow-crowned Night Heron breeds in North Carolina. He had often seen these birds in the Rocky Mount neighborhood, but his many efforts to find a nest proved fruitless until June 20, 1939, when he was led to one in Swift Creek Swamp, ten miles from Rocky Mount, by his young friend, Richmond Corinth. It was a bulky structure of sticks and twigs, placed on the limb of a sweetgum tree thirty-five feet from the ground. It contained three young in what Craighill describes as "the pin-feather stage." He has since reported a group of four nests in which young were hatched in May, 1940, and four other occupied nests that were visited on May 19, 1941; all these were in swampy regions in Edgecombe and Halifax Counties.

☆ We odd 17 records ot 4 coostol ond 7 inlond points. December records are for Lake Mattamuskeet ond Peo Island.

New single nesting records ore for Roleigh, Rocky Mount, High Point, ond Pineville. A group of 4 nests were found neor Hallsboro, and 8 nests in the Lenoxville rookery with other herons. The single nests were well up in pine trees, and the groups were lower in thickets. ☆

Genus **BOTAURUS** Stephens.

AMERICAN BITTERN.

Plate 5

Botaurus lentiginosus (Rackett). [190]

DESCRIPTION. Top of head brown with paler stripe above eye, rest of upperparts tawny, much mottled and streaked with brown, whitish and black; chin and throat white; underparts buffy, striped with brown, a black or dusky stripe on each side of upper neck. Length 28.00; wing 10.50.

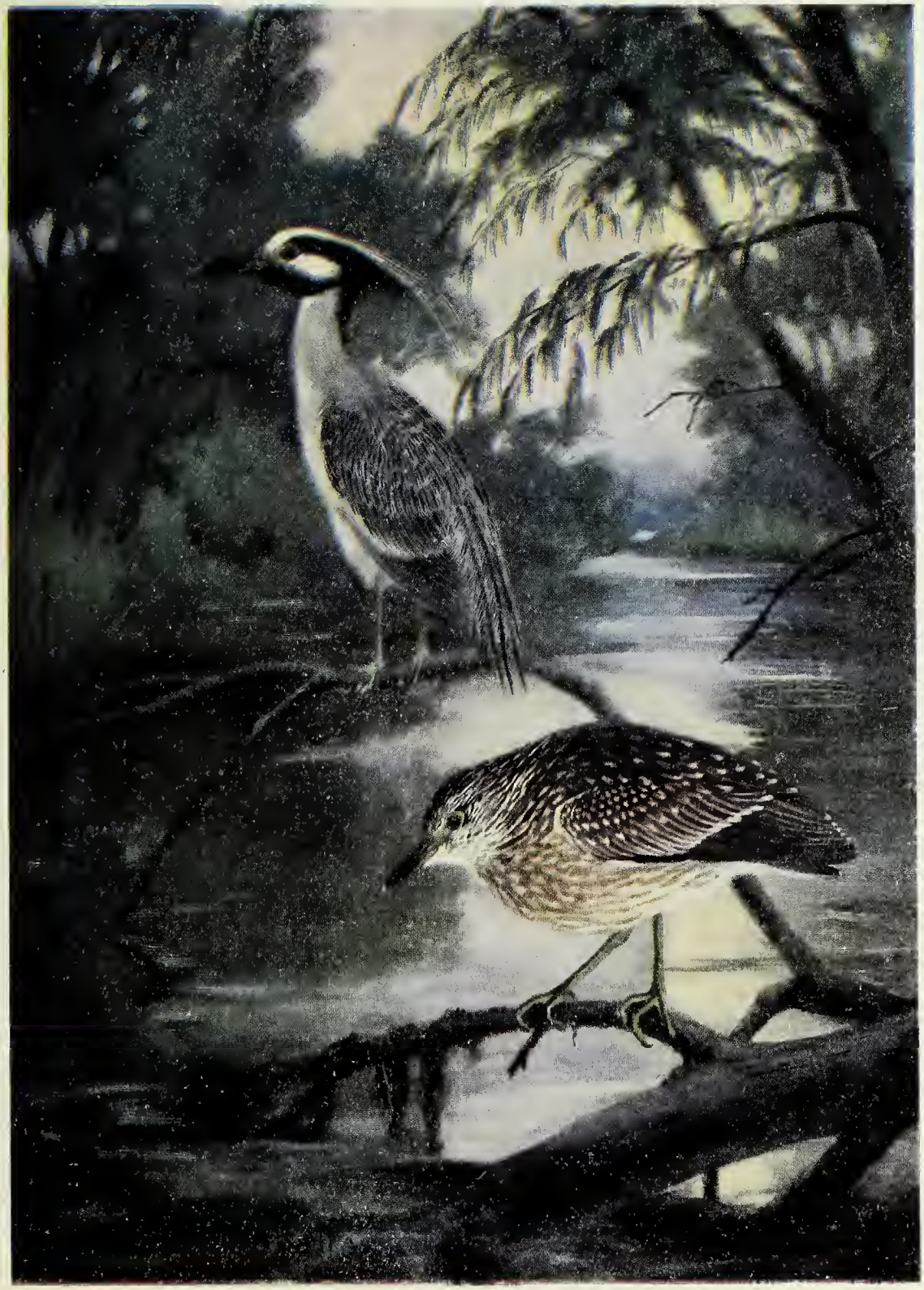
RANGE. Breeds from central Canada to the Gulf of Mexico, but sparsely and locally in the southern part of its range. Winters from British Columbia and Virginia south to the West Indies and Panama.

RANGE IN NORTH CAROLINA. Whole State except perhaps in summer months. Appears to be more common during the spring and autumn migrations. One breeding record.

Especially in spring, the presence of the Bittern may be revealed by its amazing voice. From some place out in the bog or marsh there comes a choking, pulsating sound as if a pump were working in the mud or a stake was being driven by a heavy mallet. Stop and listen well for "'Tis the Bittern's lonely cry."

We have followed these sounds here and there through the great, grassy shallows of Lake Ellis, but although the birds that produced the notes were flushed we never were able to find a nest. Others have had similar experiences both here and in the marshes of Mattamuskeet Lake, as well as elsewhere.

In the *Ornithologist and Oologist* for February, 1889, Cairns published an article on the birds of Buncombe County, in which, speaking of the Bittern, he wrote: "Have taken specimens every month from April until October." He gave no precise dates as to when he had seen them during the summer months, but



YELLOW-CROWNED NIGHT HERON. *Adult above, immature below.*

did add, "Have never found it breeding." Wayne once found young Bitterns in South Carolina, and their nests have been seen in Virginia and Florida.

The only breeding record for the State was a nest with egg shells found after the young had hatched. Joe C. Rabb, who found the nest, brought the shells to the State Museum, where they were identified by H. H. Brimley and Mrs. Simpson by their size and color. Rabb's description was: "The nest was found on Church's Island (Currituck County) on May 19, 1941, in a clump of rush (*Juncus roemerianus*) and was 4-5 inches high and 8-10 inches wide, and flat on top. The nest material consisted of dead rush and grass stems and leaves. The vegetation in which the nest was found consisted of rush marsh hay (*Distichlis spicata*), pennywort (*Hydrocotyle* sp ?), and spike-rush (*Eleocharis* sp ?). The nest was 15-20 yards from the nearest cattail clump and open water. This marsh is periodically subject to flooding by wind tides."

At Raleigh, the Brimleys have seen this bird in autumn as early as November 3, and as late in spring as May 30. Coues found it at Fort Macon from September to May. There is a winter record for it at Chapel Hill on December 23, 1925; at Lake Ellis, January 31; and on Pea Island, February 11. Greene's latest spring record at Mattamuskeet Lake was May 8, 1935; and R. P. Allen found it at Lake Ellis, May 26, 1931. E. L. Green, Jr., reported bitterns in the Cape Hatteras region at various dates from May 1 to August 16 (1935 and 1936).

This is our only large *brown* heron, and in flight the color is noticeable. It is a bog and marshland bird, with skulking, rail-like habits, and, therefore, is much less in evidence than other herons. The nest is a platform of small rushes and marsh grass built on the ground, usually in marsh or meadow. Three to five pale olive-buff eggs are laid.

☆ We find 30 more records for 8 coastal and 7 inland points. Generally coastal records are for April and December. There is an August record for Orton Plantation. Inland records are for September to April and May from Mount Olive, Raleigh, Cary, Durham, Rock Ridge and Greensboro. Highlands records are for May 12 and August 23. ☆

Genus **IXOBRYCHUS** Billberg.

EASTERN LEAST BITTERN.

Plate 5

Ixobrychus exilis exilis (Gmelin). [191]

DESCRIPTION. Male: chiefly glossy black above, brownish-yellow below; neck, shoulders, and wings with chestnut, a buffy area on wing-coverts; female with brown instead of black; under tail-coverts white in both sexes. Length 12.75 to 14.50; wing 4.50 to 4.85.

RANGE. Breeds from southern Quebec and North Dakota to the West Indies and southern Mexico; winters regularly from Georgia and southern Texas to Guatemala.

RANGE IN NORTH CAROLINA. Apparently the whole State in summer, a few possibly remaining throughout the winter in the coastal region.

Among the forms of feathered wildlife inhabiting bogs and marshlands, none is more weirdly fascinating than the Least Bittern. It haunts the rushes and cattails and here, a few feet above the water, constructs a frail nest upon which

its three to six pale bluish-white eggs are laid. The young soon acquire great dexterity in climbing among the stems of water plants, and few sights are more surprising than that of a young Least Bittern, erect and motionless, clinging to a reed stalk with its long neck extended and bill pointing skyward.

This is the attitude usually assumed upon the approach of an intruder, and so slender is its figure, and so well do the markings of throat and breast blend with its environment, that one may readily pass by without noting its presence. Upon taking wing, the Least Bittern's flight is laborious and ungainly in the extreme, and as a rule the bird soon drops to cover. If, however, necessity requires that its journey be prolonged, the long legs are elevated to a plane with its body and the wing-strokes become rapid and graceful.

Least Bitterns have been observed in the State by virtually all field ornithologists who have spent some time in their haunts. Cairns reported them common in Buncombe County fifty years ago. It seems unnecessary to record all the regions where it has been seen.

Vergil Kelly found a nest with four eggs in Bladen County, May 10, 1925; E. E. Brown recorded these birds in Alamance County, June 29, 1937, and on May 17, 1930, he and S. M. McConnell found the species in Carteret County. Odum records one at Chapel Hill, May 24, 1931. Craighill found them common in Henderson County during the summers of 1935 and '36. They occur regularly at Lake Ellis. Walker finds them abundant breeders on Pea Island.

There are two records which seem to indicate that this bittern may occasionally winter in North Carolina. H. H. Brimley handled one killed at Raleigh on November 24, 1910, and W. H. Slocum found one in Currituck County, December 15, 1915.

☆ We add 10 records from 3 inland and 3 coastal points, from March to August. The former are from Mount Olive, Raleigh and Greensboro (April-June). Several active nests on Pea Island were found from May 12 to August 15. ☆

Family **CICONIIDAE.** Storks and Wood Ibises.

Genus **MYCTERIA** Linnaeus.

WOOD IBIS.

Mycteria americana Linnaeus. [188]

DESCRIPTION. Adult: white with wing-primaries, secondaries and tail black. Head bare in adult, partly feathered in young. Immature with some gray in the plumage. Length 40.00; spread about 5½ feet; bill 8 or 9 inches long, very heavy and slightly curved.

RANGE. Breeds from Florida southward to Argentina and Peru, formerly in Louisiana and South Carolina. Individuals move northward for a time after the breeding season.

RANGE IN NORTH CAROLINA. Occasionally seen in summer.

The Wood Ibis is one of the most striking birds in this State. Its large size, its white plumage with black-tipped wings and, in the adult, its unfeathered head and upper neck make it an object not easily overlooked. In weight individuals vary from 10 to 12 pounds. Its local names include "Flint Head," "Gourd Head," and "Gannet."

It feeds in marshes, or in open swamps, and occasionally on coastal mud flats. It has a habit of remaining motionless for considerable periods, standing in a marsh or on some convenient limb. At times it soars and circles upward until lost to view. It feeds on fish, frogs, young alligators, crabs, and other forms of animal life inhabiting the shallow waters it frequents.

Fig. 10. Wood Ibis.

Wood Ibises sometimes gather in large colonies during the breeding season, and one Florida colony in 1913 was estimated to contain 100,000 birds. Young in the nests are very noisy, but adults are silent except for an occasional hoarse croak.

We have the following records of its occurrence in North Carolina. One for Raleigh, 1884; one taken at Chapel Hill by MacNider, June 12, 1901; one noted by the Brimleys in Wake County, July 4, 1906; one shot by E. I. Wicker near Sanford, June 21, 1910; one reported by Wayne, taken in Burke County, some time before 1910; a small group visited at Lake Raleigh in Wake County, July 8-11, 1927, five being the most observed on any one day (C. S. Brimley, Davis, Snyder and Jones); one killed by P. L. Taylor in Alamance County, June 24, 1932; four seen near Acme, Columbus County, by Quay, September 18, 1938;

and according to J. L. Stevens, Jr., "about fifty" frequented Lennon's Millpond near Lumberton, August to November, 1940.

☆ We add records as follows: Brunswick County (October 25th-November 8th), Beaufort (July 14th), Columbia (July 23rd), Raleigh (July 6th), Elkin (June 23rd), and Tryon (July 7th). ☆

Family **THRESKIORNITHIDAE.** Ibises and Spoonbills.

Distinguished from related families by having a deep groove on each side of the bill, extending from the nostril to the tip. Bill unusually long.

Genus **PLEGADIS** Kaup.

EASTERN GLOSSY IBIS.

Plegadis falcinellus falcinellus (Linnaeus). [186]

DESCRIPTION. Neck, lesser wing-coverts, and underparts chestnut in adults; the underparts grayish-brown in young. Upperparts in both young and adults metallic green or purple. Length about 24.00; wing 10.25-11.75; bill 4.50-5.50.

RANGE. Breeds sparingly in Florida, Louisiana, Texas, and the West Indies.

RANGE IN NORTH CAROLINA. Rare in coastal region. One breeding record.

Although "Black Curlews," presumably wandering up the coast from Florida, have occasionally been found as far north as New York, it was not until 1926 that the species was first observed in North Carolina. That year, Captain Tillett of the Bodie Island Life Saving Station, in Dare County, killed one from a flock of five that appeared in his neighborhood. He and others positively identified the specimen from a colored picture afterwards shown them by Craighill. Thirteen years later, on April 20, 1939, Samuel Walker found another Glossy Ibis on the Pea Island National Wildlife Refuge.

A more surprising event was in store for us. In July, 1940, the Glossy Ibis was found breeding in the heron colony on Battery Island near Southport, in Brunswick County. This discovery was made by Waters Thompson. A nest, two young, and three adults were seen. He photographed one of the young and the picture reveals clearly those unusual markings on the bill which are so characteristic of the young of this species.

Therefore, in 1940, at least one pair of Glossy Ibis built their coarse nest of sticks and laid deep blue eggs fully five hundred miles northeast of Alachua County, Florida, the most northern point in eastern United States where this species had heretofore been known to breed. A bird was picked up by Clyde Mason at Atlantic, February 9, 1940. It is preserved in the State Museum.

☆ Additional records were from Pea Island through Brunswick County (May to September). Immature birds were from Battery Island (August 16, 1943).

The year 1956 has been significant for this bird. On April 8th Bill Joyner reported one near Rocky Mount and John Thompson reported a pair on Alligator River, Tyrrell County. On April 20th and 21st Joe

Norwood reported a flock of 25 roosting in trees beside Lake Mattamuskeet. The next day John Thompson again saw a pair at Alligator River.

By early June Dave Adams and Waters Thompson were seeing this Ibis around Southport and it was recorded that there were 10 nests with the heron rookery at Battery Island by late June. In early July the writers, with Joyner and Thompson, found 5 pairs with their young at Starvation Island in lower Newport River. ☆

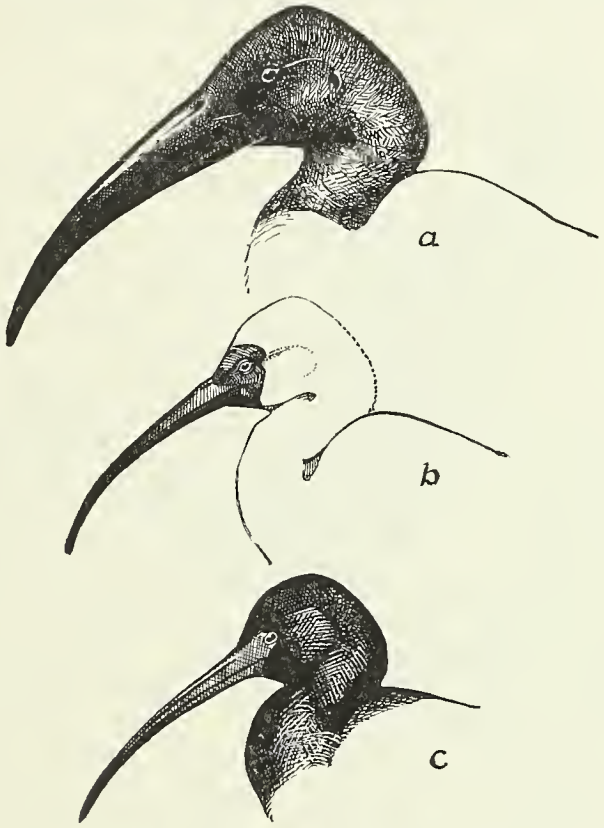


Fig. 11. (a) Wood Ibis. (b) White Ibis. (c) Glossy Ibis.

Genus **EUDOCIMUS** Wagler.

WHITE IBIS.

Eudocimus albus (Linnaeus). [184]

Description. Adults: entirely white with the tips of the longer wing-primaries black; immature birds grayish-brown; underparts, rump, and base of tail white. Length 24.00; wing 11.00.

Range. South Carolina, Mississippi and Lower California to Peru.

Range in North Carolina. Once recorded near the mouth of North River, Carteret County and once in Onslow County.

The semi-inundated prairies of Florida constitute the regions where the White Ibis (locally called "White Curlew") assembles in greater numbers than in any

other place in the United States. Here they may often be seen feeding by thousands in small scattered flocks. When alarmed they spring quickly in the air and depart on rapidly beating wings. In flight their appearance is arresting and the extended neck and long-curved bill readily distinguish them from any of the herons. For food they depend mainly on crayfish and other crustaceans. When roosting or nesting, the White Ibis generally resorts to trees in some sequestered swamp. Sometimes these breeding colonies are immense. In 1938, a rookery was visited by Sprunt and others in the marshes of the Upper Saint Johns River, Florida, which was believed to contain somewhere from 300,000 to 600,000 birds.

Fig. 12. White Ibis.

After the breeding season some individuals wander northward, having been seen even in New York and Illinois.

On July 26, 1898, Pearson found three immature birds feeding in a marsh near the mouth of North River a few miles from Beaufort. One was secured and has since been preserved in the State Museum at Raleigh.

. . . . . .

Miss M. A. Boggs described a strange bird that appeared on her lawn at Waynesville, August 9, 1913, which may have been this species. Samworth saw an immature specimen in Onslow County on August 10, 1939.

☆ We add 11 records. All were near the coast except 2 seen near Winston-Salem (July 19, 1953), and one at Clinton. Immature birds were reported from Great Lake (June 28) and near Plymouth (July 25-August 15).

Active nesting in the State was first recorded at Lennons Marsh (May 15, 1950) by Jim Stephens, and he found some 1200 birds present. No subsequent nesting has been found, but there were 4 immature birds seen about the rookery in July, 1952. Since 1950 a score or more of these birds (300 in 1955) have come back to the rookery area each spring. ☆

Genus **AJAIA** Reichenbach.

ROSEATE SPOONBILL.

Ajaia ajaja (Linnaeus). [183]

Description. Plumage largely pale rose-pink, the lesser wing-coverts and upper tail-coverts carmine in adult; neck, back, and breast white; tail orange-buff. Length 28.00-35.00. Wing 14.00-15.50. The long bill is *broad and flat at the end.*

Range. Breeds locally in south Florida, near the coast of Louisiana and Texas thence southward to Argentina and Chile.

Range in North Carolina. Has been recorded near the mouth of the Cape Fear River.

There is a statement in Barton's "Fragments of Natural History," 1799, that the Roseate Spoonbill, or "Pink Curlew," is sometimes, though rarely, seen about the mouth of the Cape Fear River. When Pearson was at Lockwood's Folly, fourteen miles down the coast from this point (June 11-14, 1898), representations were made to him that two of these birds had been killed in that locality a few years previously. On April 15, 1919, a spoonbill was seen on Smith's Island, at the mouth of the Cape Fear, by Edward Fleisher of the Brooklyn Museum, New York, and recorded in *The Auk* for October, 1920, p. 565. Fleisher also stated: "When I told Captain Willis of the Smith's Island Life Guard Station of my find, he said he had seen two spoonbills the year before."

The Roseate Spoonbill, once common at various places in the States bordering on the Gulf of Mexico, today is found breeding in this country only in Florida and Texas where, for more than a score of years its few remaining colonies have been guarded by the wardens of the National Audubon Society. Only a few hundred of the birds are left in Florida, and even under careful guardianship they seem not to increase. Apparently it is rare for one to wander beyond the northern boundary of that State. There are but three records of the species being seen in South Carolina.

Family **PHOENICOPTERIDAE**. Flamingoes.

Wading birds with extremely long, slender legs and necks, and with the bill abruptly bent downward about the middle, its grasping edges heavily fringed or serrated.

Genus **PHOENICOPTERUS** Linnaeus.

FLAMINGO.

Phoenicopterus ruber Linnaeus. [182]

DESCRIPTION. A large bird with extremely long legs and neck. In color it is dull pink with more or less red on the wings, the primaries and in part the secondaries, black. In full plumage it is almost entirely red or carmine, but this plumage is attained only when the bird is several years old. Full height nearly five feet, spread five feet or more, weight six or eight pounds.

RANGE. Bahama Islands, Cuba, Haiti, Yucatan, Guiana, and Colombia. Occasional in Florida. Rarely wanders farther north.

RANGE IN NORTH CAROLINA. Accidental in the coastal region.

Samuel A. Walker, manager of the Pea Island National Wildlife Refuge, observed two of these birds on the Pea Island beach, 10 miles south of Oregon Inlet, June 23, 1937. He was riding the beach in his car; and when he saw two strange birds ahead of him, he stopped to observe them closely and identified them as flamingoes. When he drove within fifty yards of the birds, they flew a short distance up the beach. Altogether he watched them for thirty minutes or more.

This is the only record north of Florida except the report by Audubon in 1815 that they were seen on the coast of South Carolina.

Fig. 13. Flamingo.

Flamingoes are birds of the tropical coasts from Cuba to South America. Formerly they were regular visitors to extreme southern Florida, but now they are rare enough to cause considerable comment. Howell listed them as observed in Florida five times between 1920 and 1931, with a total of 36 individuals.

A few hundred flamingoes, brought chiefly from Cuba, are kept in an enclosure at Hialeah Park, southern Florida, and some of them have bred here every summer of recent years.

Order **ANSERIFORMES.** Swans, Geese, and Ducks.

All the birds of North America belonging to this order are classified as members of a single family known as *Anatidae,* viz., swans, geese, and ducks. From Mexico to the polar seas, ornithologists have listed (sometimes as rare stragglers from the Old World) four swans, seventeen geese, and fifty-five ducks. Of these there are records in this book of the positive identification in North Carolina of one swan, eight geese, and thirty-one kinds of ducks. Our waterfowl breed mainly in the western and northwestern portions of the continent, although in autumn many fly eastward to pass the winter in waters bordering on the Atlantic Coast. Draw a line from New Orleans to Chicago, continue on through Hudson Bay and then a thousand miles farther to the barren grounds of Ellesmere Islands, and in the part of North America lying westward of this line there breed nine-tenths of all the swans, geese, and ducks of the continent.

As a rule the birds of this order lay many eggs, ranging generally from eight to fourteen. In color these exhibit various shades of pale greenish or creamy-buff and are unspotted. With many species of ducks, the male abandons all future family cares when incubation is well under way. As a rule something like a month is required for the eggs to hatch. The young of all species are covered with down when hatched and within a few hours are ready to follow the mother to the water.

Nearly all of the members of this order pass through a peculiar stage of plumage known as the *eclipse.* In a mid-summer molt, they lose their wing quills and for several weeks are unable to fly. The males now are inclined to skulk in the marshes as if ashamed of their very existence. During this period Indians and Eskimos catch many by the use of dogs. Swans and geese have been known to live to the age of sixty or seventy years. They mate for life. Ducks are suspected of not always being so constant. A peculiarity of the plumage of ducks is that most of them have a bright, oblong spot on the secondary feathers of the wing known as the "speculum."

Swans, geese, and ducks have webbed feet, but in none of these does the web extend to the rear toe. They all have well-developed vocal powers and guides are often able to identify many of the species by their notes. In the case of the Trumpeter and Whistling Swans, the surest way to distinguish them is by the character of their trumpeting calls.

Harold S. Peters, speaking before the North Carolina Bird Club on April 26, 1940, said that in 1900 there were an estimated 150,000,000 ducks and geese in the United States, but that in 1934 the waterfowl census showed only about 30,000,000 birds. This decrease was due in part to the increase of agriculture and drainage of areas used as breeding and feeding grounds and in part to the increase of the number of hunters equipped with more effective guns and ammunition who hunted over a wider area, due to the automobile and good roads.

In 1934 the Biological Survey began an intensive study of what could be done to preserve the supply of waterfowl. From the return on banded ducks and geese, it was discovered that there were regular migratory routes used by these birds between their breeding and wintering grounds. These routes are known as "flyways": Pacific, Central, Mississippi, and Atlantic Flyways. Although North

Carolina is in the Atlantic Flyway, most of our geese coming to Currituck and Mattamuskeet actually nest in the western part of Canada; they cross over near the Great Lakes and probably come down through Pennsylvania to the Atlantic Coast.

FOOD OF DUCKS

There are few rice fields in North Carolina to which wild ducks can resort. Sometimes they go into the woods for acorns; sometimes they eat sea worms and mollusks, and corn when this is available. Some feed chiefly on small fish. Most species, however, in the main, depend on the plant life growing from the bottom in our sounds, estuaries, rivers, and numerous lakes and ponds. Until comparatively recent years, Currituck Sound contained greater quantities of excellent duck food than any like area along the Atlantic Coast, and consequently it was one of the most famous concentration points for wildfowl in America. Actually square miles of Redhead Ducks floated on the water, and Canada Geese were estimated by tens of thousands.

Currituck is still a paradise for wildfowl, although conditions there have changed within the past 30 years. The locks in the Albemarle and Chesapeake Canal were removed, allowing the salt water of Chesapeake Bay to flow into Currituck Sound. This had a disastrous effect upon the fresh-water food of the ducks, and then in 1933 a storm broke the sand dune barrier in upper Currituck, flooding the Sound with ocean water. Although the locks have been reinstalled on the Canal and the sand dunes have been built up with brush fences, the "wild celery" and other duck foods have been slow in returning to their former abundance. Withal, there are few wildfowl as compared to early days, but conditions are progressively improving.

The Biological Survey, now the Fish and Wildlife Service, established three National Wildlife Refuges in North Carolina. The first of these, at Mattamuskeet Lake in Hyde County, was acquired in December, 1934. It contained 50,144 acres, about 90% of this being water.

The Swanquarter Refuge of 42,949 acres, also in Hyde County, takes in a large section of Pamlico Sound and the adjoining marshes.

The Pea Island Refuge, established in Dare County in 1937, takes in the area from Oregon Inlet to North Rodanthe, a distance of 15 miles, with some adjacent waters of Pamlico Sound, comprising a total of 38,102 acres.

Although these Refuges were primarily seen as resting points in migration, constructive work has been done to greatly increase their production of duck foods.

Duck foods are now replacing themselves in Currituck and eel grass in Pamlico is showing indications that it is overcoming its susceptibility to the disease which threatened to destroy it in our waters. Here are some of the water plants which W. L. McAtee, of the Biological Survey, tells us will continue to lure the wildfowl to our waters: "Wild celery, musk grass, widgeon grass, bushy pondweed, redhead grass"—these and other growths dear to the taste of the wild duck lure hundreds of thousands of wildfowl to our eastern waters every autumn.

. . . . . .

Records of ducks found in the interior of North Carolina have very greatly increased during the past twenty years. There are two reasons for this: First, there are many more ornithological students than formerly, and secondly, a great

many more ducks now come inland because the number of artificial lakes and ponds has been tremendously increased. Concerning these, J. J. Stone, of Greensboro, advises us that in Guilford County alone "I am of the opinion that we have as many as 350 or 400." Naturally ducks gravitate to regions where food is available.

METHODS OF HUNTING WILDFOWL

Thousands of sportsmen have journeyed to eastern North Carolina to hunt ducks and geese. They have come from widely separated points, such as Raleigh, Greensboro, and Asheville, as well as from Chicago, Atlanta, Little Rock, Philadelphia, Boston, and New York. Many expensive duck clubhouses have dotted the coast, among them the "Currituck," the "Narrows Island," "Monkey Island," "Deal Island," and "Light-house." Farther south were the "Duck Island," "Pea Island," "Harbor Island," and "Carteret" clubs. All these, and more, teemed with sportsmen in the brave old days when fowl were plentiful and legal restrictions were few.

Not all hunters shoot ducks for the mere love of killing something. There are those whose joy of being out with the wilder aspects of Nature is very intense. Such men like to feel the dawn wind on their faces as they sit in a duck blind when pink begins to show on the eastern horizon. One of these is H. H. Brimley, a sportsman of long experience and an able naturalist. In 1913 he wrote for the first edition of this book the following paragraphs, concerning methods then employed in North Carolina duck-shooting:

"Of late years, an acquired habit of many of the fowl inhabiting these waters is doing more to preserve their numbers than any legal or other artificial method yet attempted. This is the custom of feeding at night and leaving at dawn to spend the day on the open sea, where the proximity of the ocean makes this refuge available.

"On the broad waters, ducks, geese, and swan are shot mainly from batteries, the old-style coffin-box outfit having given way in some localities to the 'sit-up' battery. This latter has a wing arrangement similar to the old style, but, as the name implies, the box itself is of such size and shape, and so arranged and ballasted, as to enable the gunner to await the fowl in a sitting position instead of lying flat on his back. The decoys, two or three hundred in number, are arranged as formerly, mostly to the leeward of the box.

"On the marsh, and on many of the shooting points on the creeks and rivers, bush or reed blinds are used, with a much smaller stand of decoys. When Mallard or Black Duck are flying in broken bunches, from half a dozen to twelve or fifteen decoys are often sufficient, particularly if two or three live birds are added to the display. In goose shooting from blinds, live decoys are becoming more and more common. Wooden or other artificial decoys for geese are extremely cumbersome to handle, and most of those supplied are of doubtful utility. Two or three good talking 'honkers' are worth more than a boatload of wooden 'idols.'

"On Pamlico Sound, from a little above Cape Hatteras down to Core Sound, box blinds are mostly used. Some gunners sink a 'goose box' on the dry shoals, in close proximity to the water, and stake out their live decoys in the shallow water close at hand. Occasionally a 'rolling blind' may be found. This is a box on rollers, and is set up on the dry shoal well away from the decoys. When geese

come in, the blind, which has no bottom, is carefully and slowly worked forward until within shot of the geese. The stationary box-blinds are three and a half or four feet square and are supported by posts five or six feet above the water. These are usually fringed with reeds or rushes around the upper edge. Erected, as they are, at the first of the season, the fowl soon become accustomed to these structures and unhesitatingly feed near them.

"It is indeed an interesting experience to spend the greater part of a day alone in one of these frail structures, with a half gale blowing out of the frozen north and the attendant boatmen drifting a mile or more away. A large stand of wooden decoys is used from these blinds, a hundred and fifty ducks and fifty brant forming an average outfit. The fowl that fall to the gunner's skill are later picked up by the attendant. Often a few live geese are used in conjunction with the 'idols,' and these prove very effective when any wild geese are flying. Geese and brant are the fowl mostly killed from this type of blind, the salt-water ducks frequenting this part of the sound feeding in deeper water.

"They have a saying in the Cape Hatteras region, 'Weather to kill fowl is weather to kill men!' This, however, must not be taken too literally. My own experience, and that of many old wildfowlers with whom I have talked, is that medium bad weather is much more likely to be productive of results than the extremes of wind and cold. One day I remember being in a blind during a howling northeast gale, when a single, solitary Brant made up the total of my bag, though thousands were feeding within sight the whole of the time I remained in the blind."

. . . . . .

Family **ANATIDAE**. Swans, Geese, and Ducks.

This family consists of stout-bodied, swimming birds which have broad bills with small lamellae along the edges of the mandibles, giving these a fringed or serrated appearance. In the mergansers, however, the bill is comparatively long and narrow. All the species have webbed feet.

Genus **CYGNUS** Bechstein.

WHISTLING SWAN.

Plate 7

Cygnus columbianus (Ord). [180]

DESCRIPTION. Entirely pure white; bill and feet black; a small yellow spot on the lores, feathers of head often stained reddish-brown; young, brownish and grayish with the bill and feet pale. Length something less than five feet, expanse of wings 6 to 7 feet, weight 16 to 24 pounds.

RANGE. North America, mostly breeding north of the Arctic Circle; winters along the Atlantic Coast mainly in North Carolina; on the Pacific Coast from southern Alaska to Lower California.

RANGE IN NORTH CAROLINA. Winters along the coast; occasionally seen inland.

The Whistling Swan is a very large, white, conspicuous bird. When gathered, as they often are, in immense flocks, the mass of snowy plumage presents a sight comparable only to a vast snowbank or a glistening ice floe. They rise heavily

against the wind, but often upon attaining a safe altitude the flock, with set wings, sails along in a manner truly magnificent.

Swans feed in shallow water, reaching down with long necks for the water grasses, small shellfish, and crustaceans upon which they subsist. They are winter residents in parts of Chesapeake Bay, Currituck Sound, and neighboring waters. Ten to fifteen thousand of late years have been winter visitors on the broad expanse of Mattamuskeet Lake. Occasionally they are seen farther south. Samworth reported 30 in Onslow County, January 19, 1941.

Fig. 14. Whistling Swan.

Before Federal laws made the killing of swans illegal, cygnets were shot for food but no experienced hunter would attempt to eat an old bird.

An occasional swan wanders inland. Such a straggler was killed on the Tar River in Franklin County in December, 1903, and sent to the State Museum; in January, 1904, one was shot on a millpond in Guilford County and exhibited for some days in Greensboro. A small flock appeared in Durham County in the winter of 1927 (Seeman) and a single specimen was killed on the Yadkin River in Davidson County in the spring of 1932 by F. R. Brown. Swans mature and mate only after reaching their fourth year. They mate for life and have been known to live to be seventy years of age.

☆ We add 33 records, generally from coastal points from October until March. Large numbers spend the winter on Lake Mattamuskeet. Inland records include 4 for Lake Raleigh (December-March) for the winters of 1944, 1947, 1953 and 1955. Four were seen in Mecklenburg County (December 25, 1945), one at Greensboro (February 20, 1946), and one at Henderson (December 2, 1954). ☆

The swan usually seen in parks is the European Mute Swan (*Sthenelides olor*). It has considerable orange on the bill and the base of the bill is adorned with large tubercles.

Genus **BRANTA** Scopoli.

COMMON CANADA GOOSE.

Plate 7

Branta canadensis canadensis (Linnaeus). [172]

DESCRIPTION. Upperparts grayish-brown, underparts generally grayish; rear of belly white; head and neck black except for white patch on throat and extending upward back of eyes. Length 3 feet or more. Spread about 5 feet. Weight 8 to 12 pounds.

RANGE. Breeds from northern California, North Dakota, and Colorado northward to Alaska, James Bay, and Labrador. Winters from southern Canada to Florida and Mexico.

RANGE IN NORTH CAROLINA. Waters of coastal region in winter, occasional inland.

In the days of early autumn there may come to one's ears a deep bugle call from overhead, and looking up one may see a V-shaped flock of wild geese winging majestically along, their backs seeming to scrape the sky. Few sights are more stimulating to the observer whose interest causes him to be ever alert for the more charming aspects of Nature. Somewhere far in the North—Labrador, northern Quebec, or Manitoba perhaps—the old birds have passed the summer, and then, with their broods of the year, they have responded to the mysterious urge that starts them on the long journey which will end only when they reach Chesapeake Bay, the sounds of Carolina, or maybe the marshy shallows of the Florida west coast.

On their summer breeding grounds they perhaps were harassed by coyotes or Indians, while they were unable to fly because their wing quills had been shed. On their journey south they may have attempted to alight in stubble fields where gunners lurked in skillfully hidden pits covered with cornstalks or yellow straw. Soon, in the waters of their winter resort, hunters will seek their yearly toll from the feathered flocks.

Yet, despite the constant persecution to which these great birds have long been subjected, they retain their numbers to an amazing degree. When weather conditions are favorable, it is not an uncommon sight to see ten thousand during one day's sail through some of our eastern sounds. On Mattamuskeet Lake, of late years, their numbers at times are believed to have reached fifty thousand.

During the month of March the Canada Geese begin to leave for the North and many gunners along the coast have stated that the favorite time for the departure of the last of the flocks is during the moonlight nights of April. On May 16, 1898, Pearson saw a group of eighteen near Cape Hatteras, a date which his local guide assured him was an unusually late one. Burleigh noted this species at Asheville, April 25 and October 29 (1932)

In the summers of 1938 and '39, one hundred and fifty or more remained throughout the summer on the Pea Island Refuge in Dare County. None has bred here. Our records for Canada Geese in the interior of the State are not numerous. Through the years some have been noted in Buncombe, Edgecombe, Guilford, Yadkin, and Wake Counties. Through or between the counties of Rowan, Stanly, Montgomery, Anson, and Richmond, flows the Yadkin River on its way to South Carolina and the sea. Power dams have formed three extensive lakes in this region which, during the past dozen years, have become the central winter habitat of many Canada Geese. William Birsch, of the U. S. Fish and Wildlife Service, estimates the number now annually resorting to this section at 10,000.

Like most geese, this species matures and may breed during its third year. It is popularly believed to mate for life.

☆ These continue to be observed, often in large numbers, along the coast (September-April). With more artificial lakes, and a pattern of return, many geese are being seen inland, even as far as the Smoky Mountain Park.

Frequently a few geese stay through the summer. Breeding records are from Gaddy's Pond, Anson County, Pea Island, Lake Mattamuskeet, and Surry County. ☆

Branta canadensis interior is the name given by W. E. Clyde Todd (*The Auk*, 1938, pp. 661-662) for a bird which he presents as a hitherto undescribed race of the Canada Goose. He says of it: "General coloration darker; upperparts darker, more grayish brown (between 'light drab' and 'light mouse-gray'), deepening on flanks." He describes its range as breeding on the east coast of Hudson and James Bays, and migrating in winter to the Southern States.

HUTCHINS'S GOOSE.

Branta canadensis hutchinsi (Richardson). [172a]

DESCRIPTION. An exact duplicate of the Common Canada Goose, but smaller. Length about 2½ feet. Expanse of wings about 4 feet.

RANGE. Breeds in the eastern Arctic regions of North America. Migrates through Hudson bay and the Mississippi River. Winters along the Gulf Coast of Texas and Mexico.

RANGE IN NORTH CAROLINA. A rare straggler.

This smaller edition of the Common Canada Goose apparently comes but rarely to the Atlantic Coast. It is very numerous on the coastal prairies of Texas during the winter months. In flocks, they frequent the areas favored by the Lesser Snow Goose, but the two species rarely intermingle.

In North Carolina a specimen was taken near Brant Island, Currituck Sound, by W. H. DeForest, on November 15, 1888, and the mounted specimen was preserved in the Narrows Island Clubhouse near Poplar Branch. (McAtee, *The Auk*, Vol. 43, p. 252.)

☆ This smaller bird has 3 more records as follows: Gaddy's Pond (January, 1947), Pea Island (December, 1947), and Lake Mattamuskeet (1952). ☆

AMERICAN BRANT.

Plate 7

Branta bernicla hrota (Müller). [173a]

DESCRIPTION. Brownish, head and neck black, the latter with a patch of whitish streaks on each side. Length 24.00-30.00; wing 12.50-13.50. Weight about 4 pounds.

RANGE. In North America, breeding from Greenland northward; wintering in suitable regions along Atlantic Coast from Massachusetts to Florida.

RANGE IN NORTH CAROLINA. Coastal region in winter south at least to Onslow County.

Like the Canada Goose, the American Brant winters on our coast, where its range is confined almost exclusively to salt-water territories. In Pamlico Sound the long-extended lines of submerged sand bars and mud flats, with their abundant supplies of eelgrass, ordinarily make an ideal winter resort for this species. The birds arrive from the North usually in November, but the time seems to depend somewhat on weather conditions.

As the flesh of this bird is very palatable, large numbers formerly were shot and shipped to northern markets, a practice that is now outlawed. In North Carolina it was customary in those days to shoot them from brush blinds or floating batteries anchored in shoal water, often two to four miles from land. The brant, flying slowly, would sometimes flit entirely around a battery before alighting. If about to pass without "drawing" to the decoys, the gunner could now and then attract them by raising and lowering a foot or by slowly lifting his cap aloft.

So unsuspicious were they, that we have seen them attempt to "pitch" among the decoys after an attendant had arrived and was engaged in gathering these into his boat. Formerly gunners kept live brant which they used for decoy purposes. This practice is now forbidden by Federal regulations.

The numbers of birds killed on our coast twenty to forty years ago were enormous. In Pamlico Sound, near Cape Hatteras, Pearson once lay in a battery close to a local gunner, who shot fifty brant between the hours of 10 a.m. and 2 p.m., and the size of the kill in four hours occasioned no particular comment among the other market hunters operating in the neighborhood.

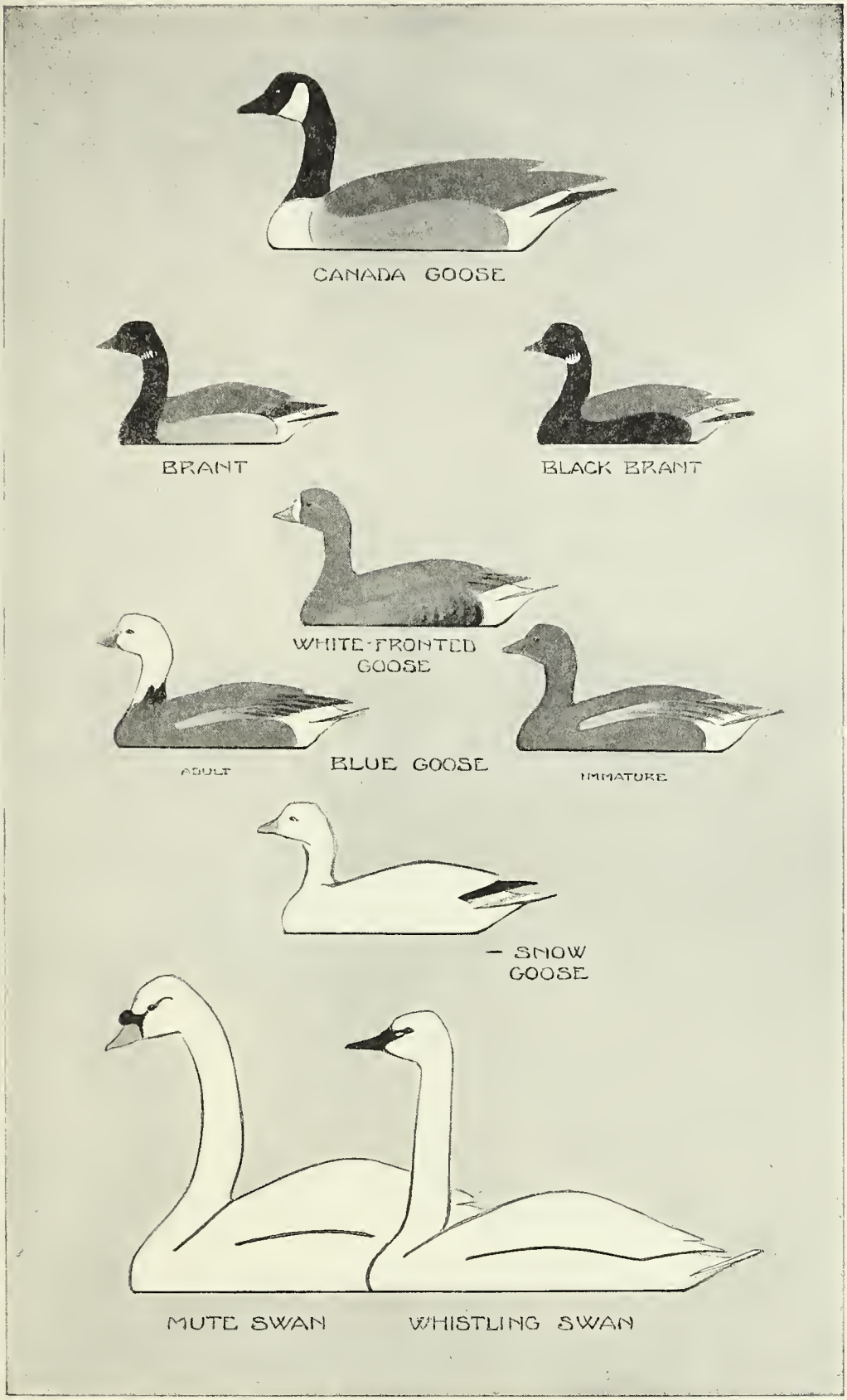
These birds depart in March and April for their breeding grounds on the shores along the Arctic Sea.

We know of no occasion when an American Brant has been seen on a body of fresh water in the State, with the exceptions of one appearing at Lake Mattamuskeet, January 9, and three others on January 22, 1935 (Greene).

A hybrid American Brant and Snow Goose was taken at the Duck Island Club, Dare County, December 28, 1936, and sent to the State Museum.

☆ The above copy describes the great abundance of this bird. They fed almost exclusively on the eelgrass that covered and held the sands in vast areas of shallow salt water.

About 1929 a blight began to attack this plant and by 1931-1932 the grass was almost gone. The Brant was most affected but other geese and certain ducks were likewise deprived of necessary food. Starving birds, and birds that did not reproduce, were the consequence.



Courtesy of Roger Tory Peterson

Shooting of Brant was stopped and other shooting was sharply restricted. Nevertheless this bird was decimated.

Reports now are that the eelgrass is slowly increasing, and we may hope that this bird will be available again for frequent winter counts and in the normal concentrations of large numbers.

Records show small groups of these birds at scattered coastal points and as far south as Wilmington.

NOTE: The Black Brant, *Branta nigricans* (Lawrence) [174], (Plate 7) is similar to the American Brant except its breast and belly are quite black and it has a white collar rather than a crescent patch. It is a brant of the Pacific Coast and is a straggler found on our coast. ☆

BARNACLE GOOSE.

Branta leucopsis (Bechstein). [175]

DESCRIPTION. Back brownish-gray striped with black and white; underparts white; sides lightly striped with dusky gray; breast, neck and top of head black; throat, cheeks and forehead white. Length 24.00-28.00; wing 15.00-17.00.

RANGE. Breeds in northeast Greenland and in Arctic Europe and Asia.

RANGE IN NORTH CAROLINA. Rare winter straggler.

This very handsome goose is about the size of the American Brant, but unlike that bird, it prefers to feed on land, where it grazes on the short grass of coastal meadows. It received its name because of the old Norse tradition that it was produced from a barnacle.

There are only a dozen or so records of the bird appearing in North America; three of these are from North Carolina. Two birds were taken in Currituck Sound, one by an unknown gunner on October 31, 1870, and another shot in the same region by W. S. Post, of New York, on November 22, 1892. Our third record was made near Pea Island, Dare County, November 24, 1925, when one was killed by C. C. Foster.

☆ For this white-faced Brant we add one record from Pea Island (November 6, 1949) and one from Gaddy's Pond (December 28, (1950). ☆

Genus **ANSER** Brisson.

WHITE-FRONTED GOOSE.

Plate 7

Anser albifrons Scopoli. [171]

DESCRIPTION. Grayish-brown, the forepart of head white in adult, underparts grayish-white blotched and spotted with black; belly and tail-coverts white; young: similar but no white on head or black on underparts. Length 27.00-30.00; wing 14.60-17.50.

RANGE. Breeds in Arctic regions of North America and Asia; winters in the United States west of Mississippi Valley to Texas.

RANGE IN NORTH CAROLINA. A winter straggler.

The White-fronted Goose, often called "Speckle-belly," is a western form rarely appearing on the Atlantic Coast.

There are seven records of this bird in North Carolina. One was taken by T. J. Poyner in Currituck Sound in January, 1897, and one by John B. Lawrence, in the same region, "about 1904." The head and wing of one taken in Currituck late in October, 1923, was forwarded to the State Museum; one was taken by H. F. Stone, of New York, in Currituck, November 23, 1928; the remains of one shot in Anson County about mid-November, 1932, was received in Raleigh; a freshly shot specimen was examined by Greene at Mattamuskeet Lake, December 5, 1936; and Walker reported two near Cape Hatteras from early fall, 1938, to February 23, 1939.

This species is a common winter resident along the Pacific Coast of the United States. Many also occur in the Mississippi Valley, where gunners generally refer to them as "Brant." Its habitat is chiefly low or marshy grounds. It is a very uncommon bird in the eastern States.

☆ New records are from Lake Mattamuskeet (December, 1943 and 1947), Gaddy's Pond (January, 1948) and Wilmington (December, 1950). ☆

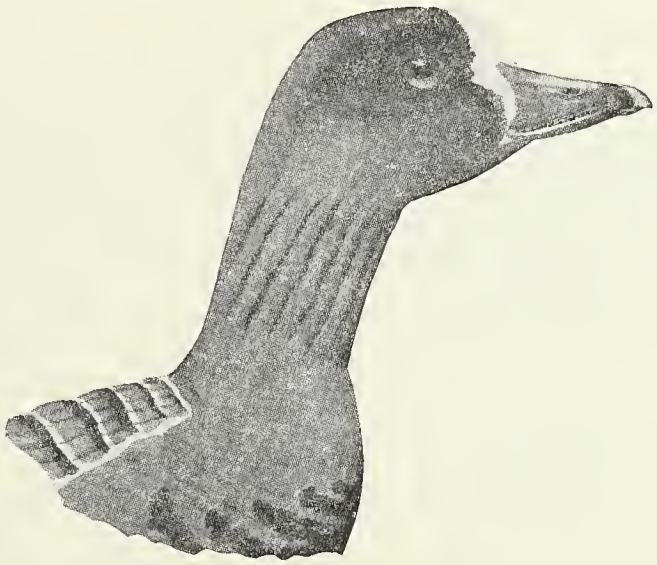


Fig. 15. White-fronted Goose.

Genus **CHEN** Boie.

(Geese with the whole plumage, or at least the head, white.)

LESSER SNOW GOOSE.

Plate 7

Chen hyperborea hyperborea (Pallas). [169]

Description. Pure white, the primaries black, and their coverts ashy. Length 23.00-28.00; wing 14.50-17.00; bill 2.00-2.12.

Range. Breeds along the Arctic Coast and islands to the north, and Siberia. Winters in western North America from British Columbia to Mexico. Rare on the Atlantic Coast.

Range in North Carolina. Accidental on coast.

This bird is common in winter in California and the eastern prairies of Texas. Two stragglers, far from their natural habitat, have been recorded in this State. L. B. Bishop reported examining in the flesh a female taken by C. C. Bush at Pea Island, February 5, 1906. The second Lesser Snow Goose known to appear in North Carolina was shot in Currituck County, November 28, 1930, by C. Browne. This specimen is preserved in the Academy of Natural Sciences of Philadelphia.

GREATER SNOW GOOSE.

Plate 7

Chen hyperborea atlantica Kennard. [169a]

DESCRIPTION. This goose has the same white plumage and black-tipped wings as the Lesser Snow Goose. It is, however, a larger bird, being 30.00-38.00 in length and wing 17.50. Weight 5 to 7.50 pounds. Head and upper neck often stained with reddish-brown.

RANGE. Breeds in Greenland and on Baffin and Ellesmere Islands. In winter, along the coast of Maryland, Virginia and North Carolina.

RANGE. IN NORTH CAROLINA. Coastal regions in winter. Chiefly north of Cape Hatteras.

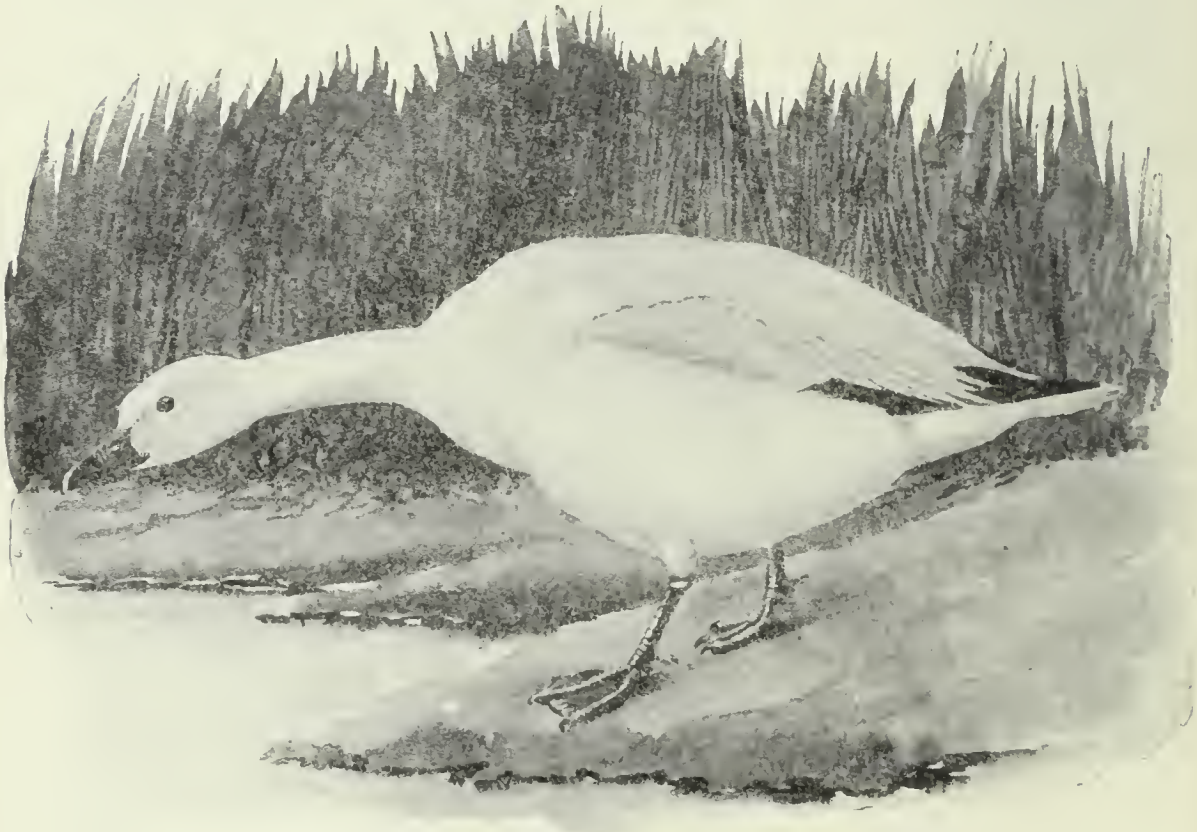


Fig. 16. Greater Snow Goose (adult).

The Greater Snow Geese, which coastwise gunners usually call "White Brant," are abundant winter residents, especially from October to February, in various favorite regions along our coast, north of Core Sound. Open water is not to their

liking, for they frequent the sandy flats and dry beaches where they graze on the short grass of the region. They have long been known especially to inhabit the outer banks of Currituck County. Like all geese, they have the habit of traveling and feeding in flocks, which sometimes are very large. An assemblage estimated at 4,000 were collected on Pea Island, January 24 to 31, 1937, and another group, believed to contain 7,000, was observed at the same place, January 26 and 27, 1938.

Even before laws were enacted to protect the Snow Goose, it was seldom shot, as its flesh does not rank high as a table delicacy.

One was observed on a pond near Ansonville, February 10, 1941, by W. H. Boyce and others. It came in with a flock of Canada Geese, remained with them all day and left that night.

☆ The large aggregations, of up to 12,000, have continued to come to Pea Island, Currituck Sound, and Lake Mattamuskeet. Coastal records for Wilmington are December 5 and October 16.

Inland records are Lennons Marsh, Greensboro, and Gaddy's Pond. ☆

BLUE GOOSE.

Plate 7

Chen caerulescens (Linnaeus). [169.1]

Description. Adult: head and most of neck white often stained with brownish; upper neck, upper back and scapulars brownish-black; lower back and wing-coverts bluish-gray, feathers edged with whitish; most of underparts brownish-gray edged with buffy; belly whitish; tail gray edged with whitish. Immature: similar to adult except head and neck grayish-brown. Length 26.50-30.00; wing 15.00-17.00.

Range. Breeds in northern North America. Winters chiefly in Louisiana, casually in more northern States.

Range in North Carolina. Of late, regular but infrequent visitor on the coast.

The summer haunts of the Blue Goose were long a mystery to ornithologists, and many explorers to the American Arctics sought in vain for its nesting place. The riddle was answered on June 26, 1929, when an expedition, headed by J. Dewey Soper, for the Interior Department of the Canadian Government, came to a region where vast numbers of the birds were breeding. This was near Bowman Bay, southwestern Baffin Island at about latitude 65°, North. Sutton found them breeding on Southampton Island the following summer.

In autumn these geese migrate southward, chiefly passing down the Mississippi Valley to the wide marshes along the Louisiana coast, where they collect in immense flocks. Pearson, who traversed much of their winter range many times during a period of twenty years (1913-1933), found flocks ranging from 20,000 to 200,000 birds. Probably a total of two million or more of these geese resort annually to the low prairies and coastal marshes of Louisiana. It is very common to find Lesser Snow Geese associated with them, usually about three per cent of any group being of this species.

The birds arrive in Louisiana early in October and usually depart for their breeding grounds by the middle of May. As comparatively few of these fine waterfowl are killed either here or in Texas, where some also resort, and as they

appear not to be shot extensively during migration, the species seems to be in no danger of serious depletion from the gunfire of hunters.

During the fall migration a few Blue Geese here and there desert the main aerial caravan and linger for part or all of the winter in more northern sections. In North Carolina, of late years, Blue Geese seem to have visited our coast more frequently than formerly, although the increased number of ornithological observers may well account for the greater number of records of their appearance since about 1930. When the first edition of *The Birds of North Carolina* was published in 1919, we had only one record of this species for the State. Atkinson examined a live bird in the possession of S. J. Moore, of Beaufort, which had been captured on Bogue Bank in the spring of 1884.

So far as we have discovered, thirty-five years then passed before another certified record of the bird was produced in this State. On November 17, 1919, W. F. Kubichek found one in company with a flock of Black Ducks on Knotts Island, Currituck County. Then after an interval of eleven years, the Blue Goose again came to our attention when the Academy of Natural Sciences of Philadelphia received two specimens that had been shot in 1930 on Currituck Sound, one by E. C. Knight on November 14, the other by W. F. Allen on December 11. On January 17, 1931, Burleigh examined a crippled bird at Salvo, Dare County, that had been captured near Pamlico Sound "late in 1930." Cottam, of the U. S. Biological Survey, found one with a flock of Canada Geese on Mattamuskeet Lake, February 3, 1932.

Earle Greene, working at Mattamuskeet, reported, in 1934, a Blue Goose on October 9, six on November 9, and 2 on November 20. In 1935 he found one on January 9. Cottam saw a small flock on Pea Island, Hyde County, January 15, 1935, that was composed of six adults and a few immature birds. At New River Inlet, Samworth found specimens on February 22, 1935, and January 21, 1936, both of which he sent to the State Museum in Raleigh. Our most southern record for the State is one recorded by T. G. Empie near the mouth of the Cape Fear River, November 18, 1939. Walker reports that specimens have been seen regularly in winter at Pea Island since 1927.

☆ We add 27 records from 5 coastal and inland points. Numbers were seen about Wilmington from October through March. Inland one or more were seen in the winters of 1947 through 1950 at Gaddy's Pond, and one was seen at Elkin (November-July, 1953). ☆

Genus **DENDROCYGNA** Swainson.

FULVOUS TREE-DUCK.

Dendrocygna bicolor helva Wetmore and Peters. [178]

DESCRIPTION. Pale yellowish-brown, darker on head and streaked with lighter hues on the flanks; a black line down back of ead and neck; rump and tail black, as is most of the wing, except for brown lesser coverts; tail-coverts white. Length 20.00; spread 3 feet.

RANGE. Central California to southern Louisiana and southward through much of Mexico.

RANGE IN NORTH CAROLINA. A rare straggler.

A Fulvous Tree-duck was taken near Swan Island Club in Currituck Sound in July, 1886, and forwarded to the National Museum in Washington, D. C.

Pearson, working in Louisiana and Texas, found that these birds frequent the rice fields and many fresh and brackish-water marsh areas.

They have long, goose-like necks and legs, usually go in small flocks, and when flying are much given to uttering strange, ringing cries by which they have acquired the local name of "Mexican Squealers." Despite the name given this bird, in the United States at least, it makes its nest on the ground and does not perch in trees.

☆ Two more were seen at Barber Lake, Southern Pines (April 15, 1949). ☆

Genus **CASARCA** Bonaparte.

(Large Old World Ducks with coarse, unpalatable flesh.)

RUDDY SHELDRAKE.

Casarca ferruginea (Pallas). [141.1]

Description. Head largely white grading into buffy on the neck, which is encircled with a thin line of black; plumage otherwise mostly ferruginous but with wing-coverts white and with primaries and tail almost black. Length 25.00; wing 14.50.

Range. Breeds in southern Spain, northern Africa and eastward to central Asia.

Range in North Carolina. A rare visitor.

This large showy waterfowl, generally known to English-speaking people of Europe as "Ruddy Sheld-duck," and in India as "Brahminy Duck," is much given to wandering, and flocks at times appear in Great Britain and elsewhere, far from their native land. They have been known to cross the sea to Iceland and Greenland.

Its name finds a place in this book by virtue of the fact that a flock of five appeared near Waterlily, Currituck County, in 1886. (G. B. Grinnell, *The Auk,* Vol. 36, p. 561.) Three of these were shot and the identification verified. Thirty years later, on November 14, 1916, we again find the bird in the United States, this time in Barnegat Bay, New Jersey. This large, rich golden-brown waterfowl is a favorite ornamental duck much prized by those who operate private or public zoological gardens.

Genus **ANAS** Linnaeus.

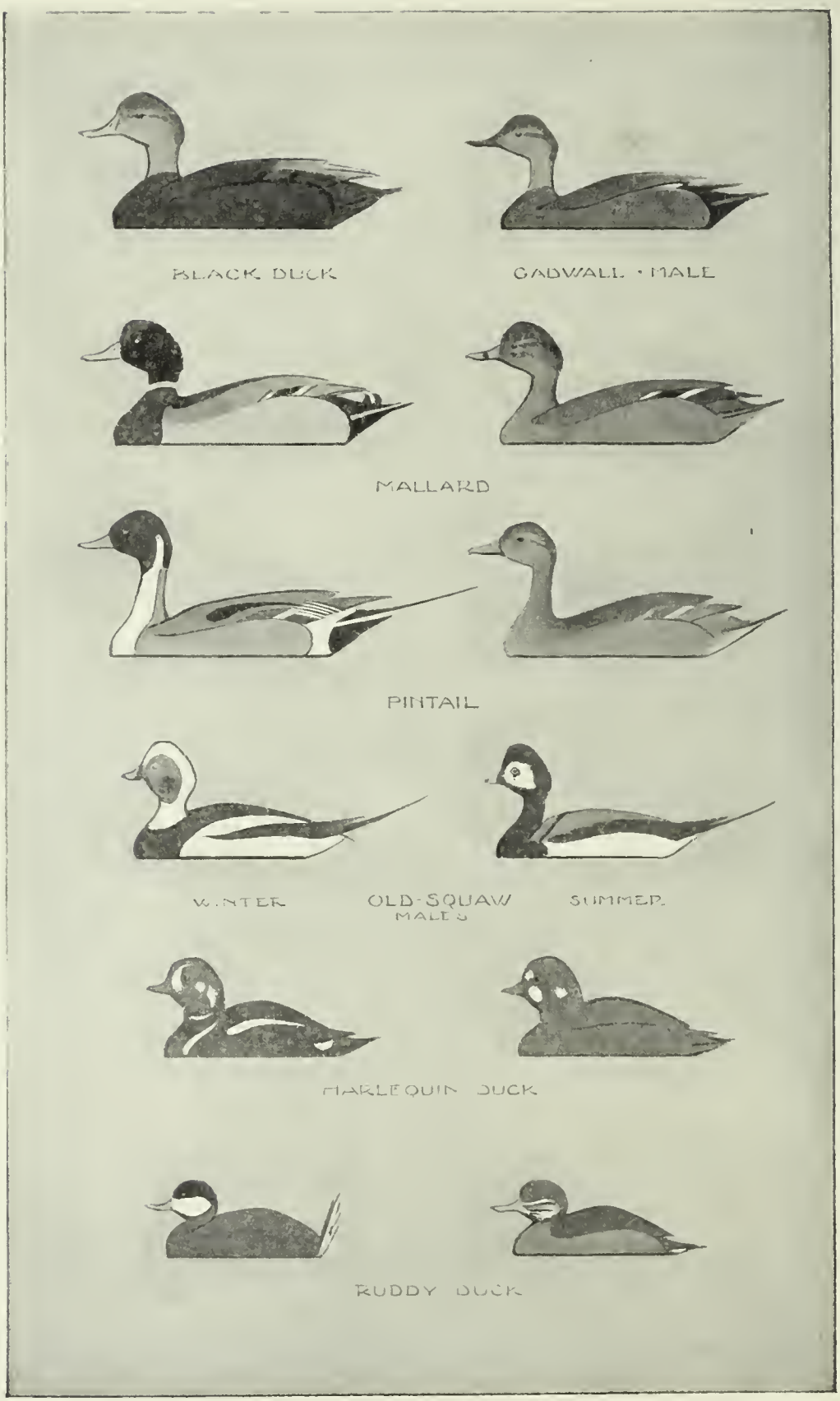
COMMON MALLARD.

Plate 8

Anas platyrhynchos platyrhynchos Linnaeus. [132]

Description. Adult male with head and neck green, narrow white ring around neck; breast chestnut, belly grayish-white; grayish-brown above; speculum purple, bordered at base and tip by narrow bands of black and white. Female and post-breeding male brown, much varied with buffy. Length 22.50; wing 11:00; weight 2 to 3¾ pounds.

Range. Breeding from Alaska and Hudson Bay south to Lower California, southern Texas and northern Virginia; also in Old World. In winter occurs in much of its summer range, also in the southeastern States, West Indies and to Panama.



Courtesy of Roger Tory Peterson

Range in North Carolina. Whole State in winter; occasionally breeding along the coast.

The most numerous and widely known duck of the Northern Hemisphere is the Common Mallard. Wherever grassy lakes, millponds, or sluggish streams occur, it may be found. Breeding usually in the North and West, that great nursery of wildfowl, mallards begin to reach our State in early October, where many remain until the following April. In the brackish marshes and in the former rice-field country of the Carolinas, they congregate in great numbers. Being universally esteemed for the table, it is little wonder that this species has long been popular with hunters.

From time to time we have received random reports of mallards breeding in North Carolina, and the accuracy of at least two of these records is beyond question. Burleigh found a female with four young on Pine Island, Currituck Sound, on May 22, 1932, and Greene examined a nest with five eggs at Mattamuskeet Lake, Hyde County, on June 23, 1935. Like most wild ducks, this one begins nesting when one year old.

☆ We have many new records, most of these being for winter and early spring. Two definite inland nesting records are for (Lake) Raleigh and near Greensboro. On May 8, 1943 a female on a nest of 11 eggs was the former record, and the latter (May 7, 1940) was an adult with 12 young. ☆

RED-LEGGED BLACK DUCK.

Anas rubripes rubripes Brewster.

Description. Top of head almost black lightly streaked with brown; sides of head, neck, and chin *heavily* streaked with blackish; general color of bird fuscous-brown, darker on back. In life, the tarsi and toes are *bright red*, the bill *yellow*, these colors fading in museum specimens. Length 22.00; wing 11.00; bill 2.20; weight 2½ to 4 pounds. Female: very similar to the Common Black Duck.

Range. Breeds *north* of the Gulf of St. Lawrence. Winters from New England south to Florida and Texas.

Range in North Carolina. Common winter resident.

Although this bird is dark brown, at a little distance it has the appearance of being black, hence the name. It is one of the popular waterfowl sought by hunters in the eastern States. It feeds in shallow water "tipping up" for that purpose, and is a common species in the tidewater regions of the State.

The Red-legged Black Duck was described and named as a distinct sub-species of the Common Black Duck by William Brewster in April, 1902.

☆ Only one record of this duck has been made since 1942, when one was seen, December 18, 1942, on Pea Island by J. R. Sydnor.

NOTE: This subspecies has been dropped by the A.O.U. Committee leaving the "Black Duck" (below) as the inclusive species. ☆

COMMON BLACK DUCK.

Plate 8

Anas rubripes Brewster. [133]

DESCRIPTION. This subspecies, on close inspection, may be further distinguished from the Red-legged Black Duck, first by its slightly smaller size (wing 10.52; bill 2.05), by its tarsi and toes which are brownish instead of red, and by the bill which is olivaceous instead of yellow. Females may be distinguished from the female Common Mallard by a close inspection of the purple speculum of the wing which is bordered with white only at the lower end instead of at both ends. Length 20.00-24.00; weight 2½ to 3 pounds.

RANGE. Breeds from *south* of the Gulf of St. Lawrence to Wisconsin and sparingly to North Carolina.

RANGE IN NORTH CAROLINA. A common winter bird. Breeds sparingly.

Often the Common Black Duck associates with the mallard; also it dabbles in the mud of shallow water like the mallard; it "quacks" like that duck, and both "climb" when frightened instead of taking off in low slanting flight, as do many waterfowl. This duck nests sparingly in the State. Brown reported it breeding on Hog Island in 1929, and Craighill said it was nesting on Bodie Island in 1936. Walker reports it breeding regularly at Pea Island (1936-1941). E. L. Green, Jr., says it is a summer resident at Cape Hatteras. Earle Greene gives the following information regarding the nesting of this bird at Mattamuskeet Lake: In 1935 he came upon a female with seven or eight young on June 19, and in 1936, he and his assistant, W. G. Cahoon, found seven occupied nests between April 25 and May 6. All were built on the ground near water. Six contained nine eggs each, and one held ten. On Cedar Island Bay Clumps in lower Pamlico, Carteret County, H. H. Brimley and Pearson on June 17, 1939, disturbed a female Black Duck that fluttered about as if young were near-by; on June 21, Walker pointed out to Pearson six broods of young on the Pea Island National Wildlife Refuge below New Inlet.

In the interior of the State this species has been noted in winter as far west at least as Surry County (Hodel, *The Chat,* October, 1940, p. 97). Burleigh reports Black Ducks near Asheville, in winter, from October 3 to March 16.

☆ This is another common duck in season, new inland records being for Raleigh (May 1), Highlands, and Swain and Wilkes counties. Nesting continues at Pea Island. ☆

GADWALL: GRAY DUCK.

Plate 8

Anas strepera Linnaeus. [135]

DESCRIPTION. Male: brownish on head, neck lighter brown with black streaks; breast and lower neck black, each feather edged with white; belly white, rump and under tail-coverts black, large patch on upper side of wing composed of three distinct bands, brown, black, and white; feet yellow. Female: duller with under tail-coverts white. Length 19.50; wing 10.50.

RANGE. In North America breeding from Athabaska and Hudson Bay southward to New Mexico and Iowa. Winters from British Columbia eastward to Chesapeake Bay and southward to Mexico and the West Indies.

RANGE IN NORTH CAROLINA. Winter resident, by no means common. Confined mainly to fresh or brackish waters.

In flight the Gadwall is sometimes mistaken for a female mallard, but the white underparts and yellow feet are distinctive marks. On the whole the plumage is so subdued that the identity of the bird often is overlooked, as usually it appears only two or three at a time and frequently in company with other ducks. Even when dead, hunters at times pass them over for small female mallards or for young Baldpates. Flocks composed entirely of Gadwalls are rarely seen, and the species is never abundant in our waters. It breeds chiefly in western Canada, and most Gadwalls migrate down the Mississippi River, many of them passing the winter in Texas and in lower Louisiana.

In feeding it prefers fresh-water sloughs, ponds, and lakeshore marshes to the open reaches of salt-water bays and estuaries. It is not choice in the matter of food; grasses, grains, insects, nuts, seeds, crayfish, and mollusks, all are taken evidently with equal relish. It is found in the State generally from October to March. Brown met with it in Guilford County, December 27, 1930; the Brimleys have recorded it nine times in Wake County, three of the dates being, December 27, 1937, and January 1 and April 4, 1938. In the Asheville territory Burleigh found four birds on the French Broad River, December 4, 1931. Also "a flock of six on the largest of the bass ponds at Swannanoa, October 2, 1933, and a single bird was observed with other ducks on Beaver Lake, March 24, 1934."

Walker made the surprising discovery of a pair of these birds with ten young on Pea Island Refuge, June 12, 1939. Eight pairs bred on the refuge in 1940, and some bred there in 1941. These reports by Walker are exceedingly interesting as heretofore the Gadwall has been supposed to confine its range in summer to western North America. We have been unable to find any previous record of it breeding east of Iowa and southern Wisconsin.

☆ We add 42 records. The inland reports are for Greensboro (October-May). Breeding continues at Pea Island, with apparent increases each year. ☆

AMERICAN PINTAIL.

Plate 8

Anas acuta Linnaeus. [143]

Description. Male: head and throat brown, back of neck black; front of neck, breast and belly white. Sides and back marked with wavy lines of black and white. Speculum green. Female: brownish with much streaking and many spots. Length 21.00-30.00; wing 9.50-11.25; tail 4.50-9.50.

Range. Breeds from northern Alaska to Hudson Bay and southward to California and Indiana. Winters from southern Alaska and Chesapeake Bay to Panama.

Range in North Carolina. Coastal region in winter, occasional inland.

The long-necked, long-tailed, streamlined American Pintail, or "Sprigtail," is a very common winter resident along our coast country from Onslow County northward. Mattamuskeet Lake, famous today for its wildfowl assemblages, is a particularly happy hunting ground for this popular species. Here, as a rule, it vastly outnumbers all other ducks. In the winter of 1936-37 it was estimated by Biological Survey officials that the pintail population exceeded 42,000, all other

species of ducks combined numbering only about 7,000. At Pea Island, winter of 1940-41, Walker reported about 8,000. These ducks stay with us in numbers from September to March, feeding chiefly on the grasses and water plants that abound in the waters they frequent.

While pintails are in North Carolina some of them scatter to inland waters. Supporting this statement are the following records: Frequent visitors in Durham County during the winters of 1927 to 1929 (Seeman); Orange County, March 1 and 2, and November 13 and 29, 1932 (Odum); and in the Raleigh region of recent years, December 24, 1928, March 2, 1935, March 2 and 17, and December 10 and 14, 1936, and on December 3, 1937. Some also have been noted by Hodel in the Elkin region, and by Burleigh in Buncombe County.

Fig. 17. American Pintail (adult male).

☆ These ducks continue to be a common winter bird along the coast. A Charlotte record is November to April and for Elkin (December-April). In May, 1950, a pair nested and brought off a brood at High Point. ☆

EUROPEAN TEAL.

Plate 9

Anas crecca Linnaeus. [138]

DESCRIPTION. Male: virtually identical with the Green-winged Teal, but it has no white in front of the wing and the creamy inner scapulars have black marks on their outer web. Females of the two species are not distinguishable.

RANGE. Breeds in Iceland eastward through Europe and Asia to the Aleutian Islands. In winter south to Africa, India and China.

RANGE IN NORTH CAROLINA. Of accidental occurrence.

Our one evidence of the appearance of this exceedingly rare bird in this State is as follows:

In *The Auk* for January, 1927, p. 95, there was published a letter from Wharton Huber which reads: "The Academy of Natural Sciences of Philadelphia has just received a fine adult male European Teal (*Nettion crecca*) shot on Currituck Sound, N. C., on December 7, 1926, by Mr. Charles M. B. Cadwalader."

GREEN-WINGED TEAL.

Plate 9

Anas carolinensis Gmelin. [139]

DESCRIPTION. Male: head and upper neck chestnut-rufous with a broad stripe of green from in front of the eye to back of head, the green bordered beneath with a white line; breast tinged with vinaceous and spotted with black; belly white; sides and most of back waved with narrow black and white lines; wing patch green tipped with black and white; a white bar in front of each wing. Female: duller colored. Length 12.50 to 15.00; wing 6.25 to 7.50.

RANGE. Breeds from northern Alaska to James Bay to central California and western New York. Winters from Canada to Mexico and the West Indies.

RANGE IN NORTH CAROLINA. A common coastwise species, often seen on inland waters.

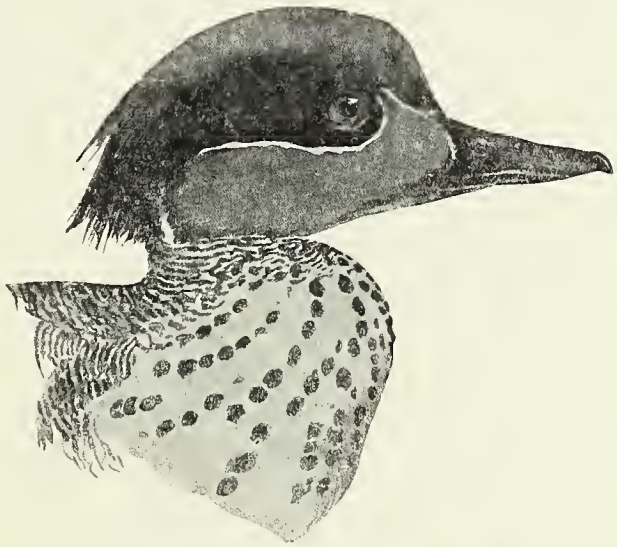


Fig. 18. Green-winged Teal (adult male).

This is one of the smallest of our ducks, also it is one of the earliest to arrive in the autumn. Coues said they appear in Carteret County by August. They remain at least until the middle of April.

Their feeding and resting places are grassy ponds and river margins, where they often associate with other ducks. It is unusual to find them on open lakes or other large bodies of water. Teal are generally regarded as very rapid flyers;

however, they are no more speedy than are the mallards. They often move through the air in compact flocks, which, however, spread with great suddenness at the first glimpse of a lurking wildfowler. As a game bird, its flesh is highly esteemed.

Earle Greene (1932-33) reported them common winter residents at Lake Mattamuskeet; E. L. Green, Jr., writing from Cape Hatteras, said: "A small number remained throughout the winter each year" (1935-37); Walker reported about 700 at Pea Island, winter of 1940-41. Samworth found them common in Onslow County, and in December, 1932, saw more than 200 in one flock. Inland, Seeman reported them in Durham County, and Simmons recorded them in Moore County. Odum saw some in Orange County, September 17, 1932, and September 12, 1933. The Brimley brothers, during the past forty years, have noted them several times in Wake County.

Pearson recalls on one occasion seeing a wounded Green-winged Teal fall, which, on striking the water, instantly dived. After watching briefly for its reappearance, he waded out to the point where it had disappeared and found the bird about two feet beneath the surface, clinging with its bill to the stem of a submerged water plant.

☆ We add 42 records from 3 coastal and 7 inland localities. The net change is in inland records westward from Greensboro to Ronda. (September 8th to April 21st). ☆

BLUE-WINGED TEAL.

Plate 9

Anas discors discors Linnaeus. [140]

DESCRIPTION. Male: *in late winter and spring plumage,* head and neck dull plumbeous with a large white crescent in front of eye; lesser wing-coverts sky blue; breast and belly rufous spotted with black. In autumn and early winter sexes are very similar. Female: much streaked, patch on wing blue. Length 16.00, wing 7.25.

RANGE. Breeds in many regions from central Canada to North Carolina. Winters from North Carolina sparingly to Brazil and Chile.

RANGE IN NORTH CAROLINA. Mainly a transient, seen chiefly in spring and early autumn.

This species is about two ounces heavier than the Green-wing, weighing about one pound. It is usually found in flocks and, teal-like, it inhabits shallow waters, preferring grassy sloughs, lakes, and quiet backwaters of rivers. The full plumage is not acquired until mid-winter, and the male loses its conspicuous markings by mid-summer. Thus males are seen in bright plumage in North Carolina only in the spring migration.

We may expect the Blue-winged Teal to begin to arrive in September, and by the time the legal hunting season opens in November most of them have departed for more southern regions. C. S. Brimley records their appearance at Raleigh in autumn as early as September 5 (1935), and in spring as late as May 6. On July 8, 1938, Walker at Pea Island found four young birds not able to fly. He watched them at a distance of ten or fifteen yards. In 1940 five or six pairs bred here. This is the only duck that comes to us from the north that does not regu-

larly remain throughout the winter months. Its speed in flight is much less than some suppose, probably not exceeding thirty-five miles an hour. Burleigh reports this as one of the most common ducks seen during migration at Asheville.

☆ We add 32 records from 2 coastal and 9 inland points as far west as Linville and Lake Junaluska. The dates (September to May 19th) confirm the transient pattern. Increased nesting has been observed on the Pea Island Refuge. ☆

CINNAMON TEAL.

Plate 9

Anas cyanoptera Vieillot. [141]

Description. Very similar to the Blue-winged Teal, but in the male the head, neck, and underparts are uniform *chestnut*. Top of head blackish. Immature males and females similar to those of the Blue-wing but averaging larger.

Range. Breeds in western North America from Canada to Lower California and in southern South America. Accidental on the Atlantic Coast.

Range in North Carolina. Rare straggler.

We know of this beautiful, reddish-brown duck from the far West occurring but once in North Carolina. It was discovered by J. B. Hodges at Lake Mattamuskeet on February 5, 1935. (*The Chat*, 1937, p. 51.)

Genus MARECA Stephens.

EUROPEAN WIDGEON.

Plate 9

Mareca penelope (Linnaeus). [136]

Fig. 19. European Widgeon (adult male).

Description. Crown rich creamy-white, rest of head and neck rufous-brown; upper breast wine-colored; lower breast and belly white; speculum metallic green in front, velvety black behind; female: duller, with lower wing-coverts ashy-gray instead of white. Length 19.00; wing 10.50.

RANGE. Breeds in Greenland, Iceland and generally throughout northern Europe and Asia.

RANGE IN NORTH CAROLINA. Irregular winter visitor on our coast.

The male European Widgeon may be distinguished readily from our American Widgeon, or Baldpate, by its grayish plumage and rich brownish head with yellowish crown. Our records of its appearance in North Carolina are eight in number and are as follows: One was taken at the Currituck Shooting Club in 1887; another was killed in Currituck Sound by L. C. Fenno, November 12, 1900; a newly shot bird was examined by W. L. McAtee in Currituck Sound in November, 1919; Samworth took one in Onslow County, March 14, 1936, and sent the specimen to the State Museum; Cottam reports one on Bodie Island, Dare County, January 25, 1937; and in *The Auk*, Vol. 44, p. 95, one was reported from Currituck, November 12, and two from the same locality on December 11, 1926 (Cadwalader). Walker observed one on Pea Island Refuge on March 9, 1939, and another on March 6, 1940.

☆ We add 2 old records for Currituck Sound. They ore January 3rd and December 3rd, in 1910. Loter records ore Mottamuskeet Lake (March, 1944), and Wilmington hod 11 records timed from October to March. One poir spent the winter ot Ronda, in Wilkes County. Other inlond records ore for Roleigh ond Rocky Mount, December and January. ☆

BALDPATE: AMERICAN WIDGEON.

Plate 9

Mareca americana (Gmelin). [137]

DESCRIPTION. Male: head and neck grayish, speckled with black, head *white* on front and top, with bright green patch on side; general plumage grayish-brown, whitish beneath. Female: with neither white nor green areas on head; otherwise colored much as male.

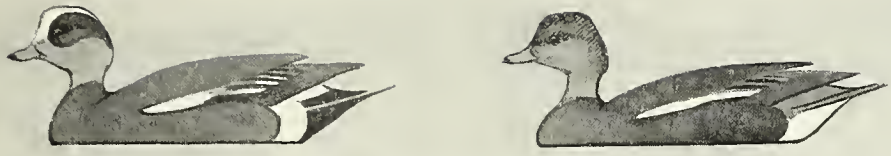
RANGE. Breeds from northwestern Alaska to Oregon and Indiana. Winters in the East from Delaware to Panama.

RANGE IN NORTH CAROLINA. Coastal region in winter, occasional inland.

Few of our ducks breed as far north or migrate as far south as does the Baldpate. Flocks of them, often in massed formation, begin to arrive in North Carolina early in October, and throughout the winter this species forms an important part of the wildfowl population that teems in our sounds and coastwise lakes. The time of their departure for the northern breeding grounds is in the month of April. Some have been noted at Asheville as late as the 29th (1931), according to Burleigh.

Various water plants constitute their chief food while here. They are particularly fond of wild celery, which they often steal from the Canvasbacks and Redheads which have just brought to the surface pieces of this choice vegetation.

Occasionally individuals or small flocks come inland and are noted by some bird student. As examples, a male was found at Lake Ashnoca, near Asheville, November 7, 1935, by R. B. Wallace, and the Brimleys record them, at Raleigh, as regular, but not common, winter visitors. Earl M. Hodel noted one on Roar-

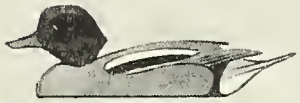


BALDPATE

EUROPEAN WIDGEON
MALE

CINNAMON TEAL
MALE

GREEN-WINGED TEAL
MALE



EUROPEAN TEAL
MALE

BLUE-WINGED TEAL

SHOVELLER

WOOD DUCK

Courtesy of Roger Tory Peterson

ing Gap Lake (*The Chat*, October, 1940, p. 97). A convenient field mark for identification is the distinctive white patch on the forehead of the male.

☆ Most of the new records are for the coast, notably Wilmington from October to May. Inland records are from Highlands, Elkin, Winston-Salem, Charlotte, Ansonville, Chapel Hill, Raleigh, Henderson, Kinston and Greensboro (October 26th-May 12). ☆

Fig. 20. Baldpate (adult male).

Genus **SPATULA** Boie.

SHOVELER.

Plate 9

Spatula clypeata (Linnaeus). [142]

DESCRIPTION. Male with head and upper neck green; breast white; belly chestnut; wing-coverts blue. Female: much duller, streaked with brownish. Length 17.00-21.00; wing 9.00-10.00.

RANGE. Breeds from Alaska and Saskatchewan south to Kansas and California. Winters from British Columbia, lower Mississippi Valley and Maryland southward to the West Indies and South America.

RANGE IN NORTH CAROLINA. More numerous during migration, but many spend the winter in suitable areas.

The male Shoveler is a bird of striking appearance. The green head may lead the hasty observer to believe that he is looking at a mallard, the similarity also being heightened by its large size. In North Carolina it appears in limited numbers, usually frequenting fresh or brackish waters. As a rule, they are not highly esteemed by gunners. "You will never find a fat Spoonbill Duck," many of them will tell you.

Among the various Shoveler records for the State, H. H. Brimley mentions seeing "a flock of about a dozen" at Lake Ellis in November, 1909. Cairns said

it is a spring migrant in the Asheville region. Samworth reports it a common winter bird in Onslow County; Craighill lists it for the Rocky Mount region. A pair was seen near Raleigh, March 16, 1937, and three were noted there on November 18, the same year. Seen only in spring at Asheville, March 22 to April 1 (Burleigh).

☆ Coastwise, new records from 4 points are from Pea Island to Wilmington, and more for November to January. Inland records are 5 from Lumberton, Rocky Mount, Raleigh, Greensboro and Elkin, and show a distinct spring migration pattern. ☆

Genus **AIX** Boie.

WOOD DUCK: SUMMER DUCK.

Plates 9 and 10

Aix sponsa (Linnaeus). [144]

Description. For coloring of adult male and female see Plate 10. Length 18.50; wing 9.00.

Range. Breeds in southern Canada and in almost every State. Birds of the northern part of the range move southward for the winter.

Range in North Carolina. Whole State at all seasons, but much more common in the low coast country. Many migrants come from the north in autumn.

For exquisite markings, no American waterfowl surpasses the male Wood Duck. Never is this species absent from North Carolina. The margins of our sounds, quiet backwaters of rivers, sequestered forest ponds, open places in swamps, and rice-field ditches are its haunts. At times it resorts to woodlands to feed on acorns. Its plaintive notes are often heard when in flight.

On May 11, 1898, Pearson found a Wood Duck's nest in the hollow of a holly tree at Cape Hatteras some six hundred yards from the water. The twelve slightly incubated eggs were almost entirely covered with down plucked from the body of the female. The same day another nest was found in a hollow oak stump twenty feet from the ground. This contained thirteen eggs that were about ready to hatch. In 1937, E. L. Green, Jr., reported the species had become scarce at Cape Hatteras. Two nests were discovered by H. H. Brimley and Pearson at Orton Pond, Brunswick County, on May 3, 1920. One was in a hollow stump, the entrance being at the top, some six feet above the water; the other was in the cavity of a living cypress tree, the entrance being at a height of about twenty feet. Other breeding records are Scotland County, May 3, 1931, nest and eggs found by V. Kelly; Wake County, April 28, 1898 (C. S. Brimley); Hyde County, August 3, 1935, female and young (Greene); and Onslow County, May 30, 1938, female and seven young (Collie).

Sometimes the tree selected for a nest is a mile or more from any body of water. When visiting such a nest the birds travel together, the female generally flying some rods in advance of the male. While she is in the nesting cavity her mate often perches on a near-by limb and awaits her reappearance. When the eggs have hatched, the young are led or carried to the water by the parent.

By August, the brood is strong upon the wing, and various families assemble at favorite feeding places in marshes or swamps. Flocks of considerable size may

be found throughout the fall and winter. Craighill and others reported (*The Chat,* Nov.-Dec., 1938) a flight of 149 at Swift Creek near Rocky Mount on December 26, 1938, and Samworth wrote of "regular evening flights from 100 to 400" near his home at Marines, Onslow County, late in January, 1941. At Asheville these ducks were found as fall migrants by Burleigh.

The species has greatly increased in numbers the past twenty years as a result of Federal regulations which rendered their hunting illegal until 1941.

☆ It appears that this duck has gained in population as a result of a period of years off the shooting list. Nesting response is good in suitable habitat and we have a record as far west as Greensboro. ☆

Genus **AYTHYA** Boie.

With this genus begins our series of "diving ducks," that is, ducks which regularly dive for their food, instead of simply tipping up their bodies and gathering it from the bottom.

Included in this group are such famous wildfowl as the Canvasback, Redhead, and the Greater and Lesser Scaups, in North America; and the Pochard, White-eyed Pochard, Scaup, and Tufted Duck of western Europe.

In North America, five native species belong to this genus. Representatives of all of these migrate in autumn to North Carolina, and many remain on our waters throughout the winter. All are "raft ducks," that is, ducks that frequently congregate in large flocks while resting or feeding. They are found usually on wide open bodies of water and are not given to feeding in small streams or marshy places. Also, we seldom find them resting on the shore.

REDHEAD.

Plates 11 and 12

Aythya americana (Eyton). [146]

DESCRIPTION. Male with head and upper neck chestnut red; lower neck, breast, back of neck and upper back black; rest of back and scapulars barred with fine black and white lines of nearly equal width; sides similarly marked; belly white. Female: brown, without white in front of eye. Length 17.00-21.00; wing 8.50-9.25; weight 1¾ to 3 pounds.

RANGE. In summer from northern Alberta to New Mexico. In winter from British Columbia and Maryland southward to Mexico and the West Indies.

RANGE IN NORTH CAROLINA. Mainly salt and brackish waters of the coast in winter, rarely inland.

Thirty years ago these large, handsome, and exceedingly edible wild ducks were very abundant in North Carolina. They collected in closely packed rafts numbering many hundreds, or even thousands, on the waters of Currituck, and in portions of Albemarle, Pamlico, and Core sounds. Their slaughter by "fire-lighting" was the talk of the coast country. In the heyday of the commercial hunter, their bodies were a source of income to hundreds of men who depended for their living, and that of their families, largely on the ducks, geese, and shore birds they killed for market. By day they were shot over large stools of anchored wooden decoys, either from floating batteries or from brush blinds. Flock-shooting by night was a common practice and as many as one hundred and fifty

WOOD DUCK. *Male and Female.*

were often taken in a few hours work, by men in one small boat, with the aid of a light that blinded the ducks until the hunters were within easy shotgun range.

Because of excessive hunting in this and other States, the species became sadly depleted. Today, due to laws shortening the shooting season, prohibiting the use of live decoys, limiting the number that may be taken in a day, and the prohibition of the sale of their bodies, there is a good prospect that the threatened extinction of the species will not now materialize.

Redheads feed mainly on vegetable matter, being especially partial to the "wild celery" (*Vallisneria spiralis*) which flourishes in Currituck Sound and is not to be confused with the eelgrass (*Zostera marina*) of salt and brackish waters, the natural supply of which has been so much reduced by disease of late years. To procure their food the ducks must dive to the bottom.

This species bears a close resemblance to the Canvasback, but may be distinguished by its shorter head and bill, and by its darker mantle.

The Redhead with us is so consistently a broad-water duck that we have been able to learn of only three cases when individuals have been found in the interior of the State. These occurrences were in Durham County, July 31, 1929 (Seeman); rare spring and autumn migrant at Asheville (Burleigh); and in Wake County, December 21, 1937 (Grey and Craighill).

☆ Most of the 38 records are coastal as far south as Wilmington. Inland records are for Gaddy's Pond (October 26th-February 27th), Durham (July 31st), Raleigh (February 1, 1955), and as far west as Elkin (March 9th). ☆

RING-NECKED DUCK.

Plates 11 and 12

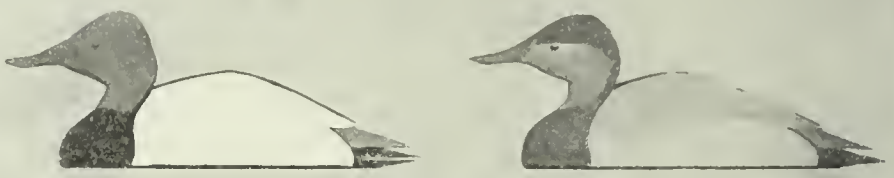
Aythya collaris (Donovan). [150]

Description. Male with head, neck, breast and back black. *Chin white,* rest of underparts mostly white; a white bar in front of wing; bill with white ring at base and *white band* near the end; an *indistinct chestnut collar* around middle of neck. Female with no white feathers at base of bill, and with *gray speculum* as in male. Length 15.50-18.00; wing about 7.50.

Range. Breeds from northern Iowa and Utah northward to British Columbia and western Ontario. In the East, winters from Chesapeake Bay to Guatemala.

Range in North Carolina. A winter resident preferring fresh-water bodies.

"Ring-billed Duck" is a more appropriate name for this bird, which is often mistaken for a scaup. Our knowledge of its occurrence in North Carolina has been much increased since the publication of *The Birds of North Carolina* in 1919. Perhaps before that time many observers mistook it for the Lesser Scaup, or maybe with the increase of artificial lakes, it has come inland more than formerly. The brown ring on the neck is present only in old males, and even then is easily overlooked unless the bird is examined in the hand. The female may be distinguished from a female scaup by the absence of a white patch on the cheek just back of the upper bill. This splendid diving duck is usually fat, and while with us weighs about a pound and a half.

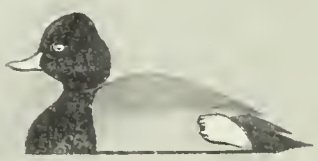


CANVASBACK

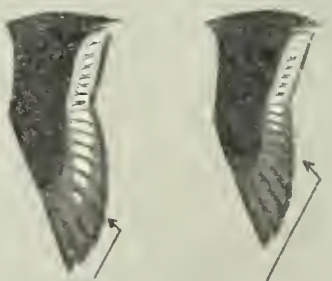
REDHEAD

RING-NECKED DUCK

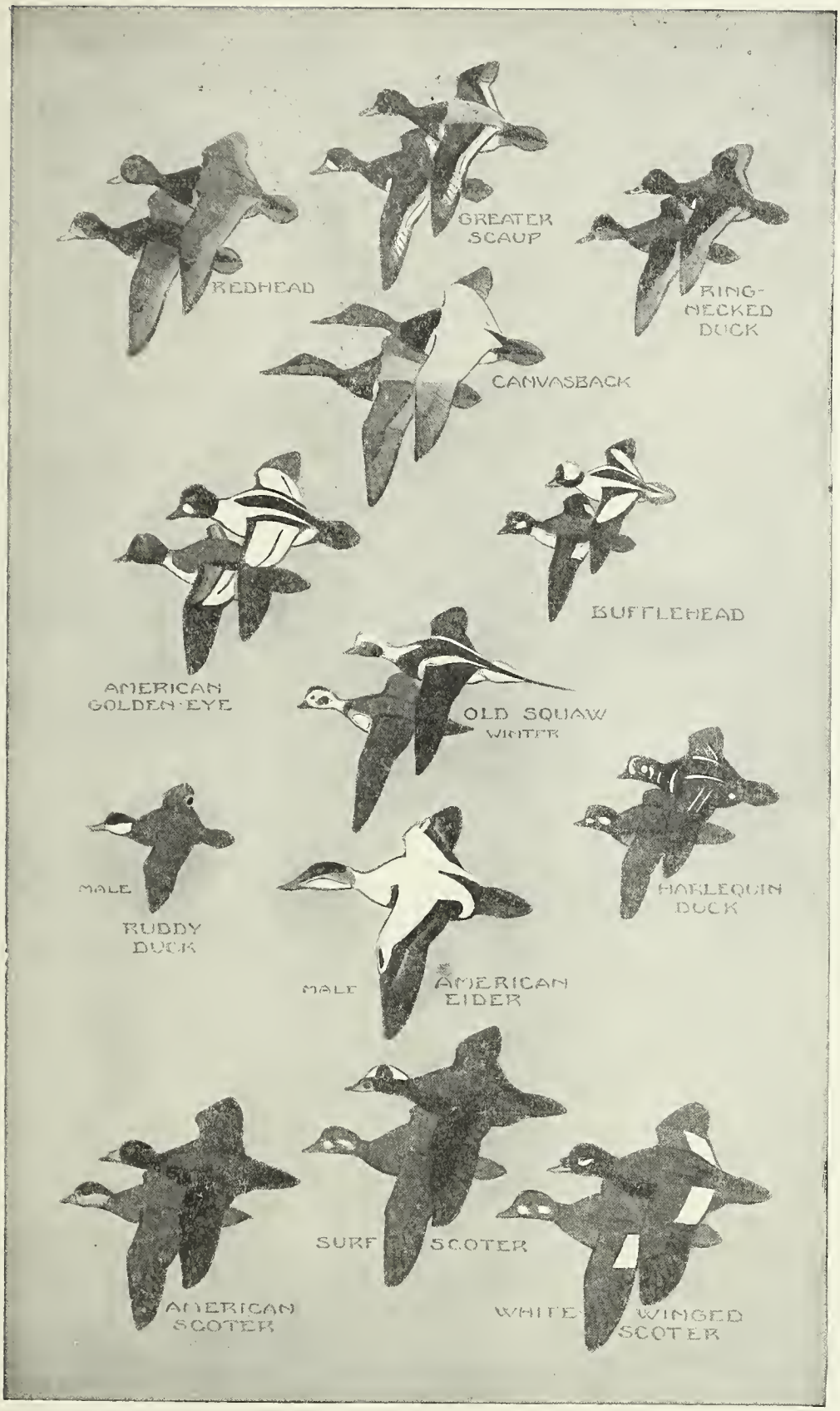
GREATER SCAUP



LESSER SCAUP
MALE



GREATER SCAUP - LONG WHITE WING STRIPE.
LESSER SCAUP - SHORT WHITE WING STRIPE

Courtesy of Roger Tory Peterson

Courtesy of Roger Tory Peterson

The Brimleys, Odum, and others agree that of recent years this is the most common duck in the Wake and Orange County regions. R. B. Wallace reported them plentiful in the Asheville country November 7 to December 20, 1935. In Guilford County, Brown noted them March 9 and 30, 1930, and said that on March 19, 1932, a flock of 70 were seen on Lake Brandt. H. H. Brimley recorded "Ring-necks constituted 30 or 40 per cent of all ducks taken on New River, Onslow County, 1930-31 and 32." Orton Pond, in Brunswick County, is a favorite resort of this species.

Some are always found in coastal waters, but even in Currituck Sound, the water of which is but slightly salty, McAtee records them as not common.

☆ Many new records show this to be our most common winter duck on inland waters, and less so in salt waters. Late dates are for Greensboro (May 13) and Highlands (June 20). ☆

CANVASBACK.

Plates 11 and 12

Aythya valisineria (Wilson). [147]

DESCRIPTION. Male with head and neck reddish-brown; breast and upper back black, rest of back finely barred with black and white, the white lines widest; belly white (bill larger and longer than that of the Redhead). Female: duller but distinguished from the female Redhead by the back being barred with whitish lines which are lacking in that species. Length 21.00; wing 9.00. Weight, 2 to 3 pounds.

RANGE. Breeds from western Nebraska, northern New Mexico northward to Great Slave Lake and Alaska. Winters from British Columbia and northern Colorado to Florida and Mexico.

RANGE IN NORTH CAROLINA. Coastal region chiefly: once found at Asheville.

The Canvasback, whose virtues on the dining table have long been extolled by North Americans, was formerly an extremely abundant duck in North Carolina, but now it exists only in sadly depleted numbers. Three major causes that contributed to producing these conditions were: Overshooting, the destruction of the duck's breeding grounds by drainage and prolonged drought, and a disease known as *botulism*. The very existence of the species seemed for a time uncertain. Of late years, however, an aroused public opinion has produced various remedial conditions, which, with a few good breeding seasons and the natural fecundity of the birds, are causing them once more to increase in numbers.

In the autumn of 1934, Pearson visited the main concentration areas of wild ducks for a thousand miles along the Atlantic Coast and in various territories of the Mississippi Valley. He chanced to be on the flats in the estuary of the Susquehanna River the morning of November 20, 1934, immediately following the arrival of the main Canvasback flight that each year comes to the Atlantic Coast from its breeding territory in the far Northwest. With him that day were four State and Federal officials much skilled in dealing with wildfowl matters. The entire party agreed that 250,000 was a conservative estimate of the numbers of Canvasbacks that had arrived. Farther south, on the Potomac River, Pearson found about 6,000 more Canvasbacks, but not another one was discovered east of the Mississippi River.

Thirty years before one might have found that many in Back Bay, Virginia, or in Currituck Sound, North Carolina. In 1936 and 1937 the Government forbade the killing of this species, but in 1938 their partial recovery in numbers resulted in again opening the shooting season for a small daily bag limit on this famous duck which for two hundred years has stood as the symbol for all that is excellent on the table of the epicure.

☆ On the coast this duck seems to be holding its own. Inland records (9) as far west as Lake Junaluska indicate wide dispersal in migration. ☆

GREATER SCAUP DUCK.

Plates 11 and 12

Aythya marila nearctica (Linnaeus). [148a]

DESCRIPTION. Male: head, neck, and breast black (the feathers of head showing a *greenish gloss*). No suggestion of ring on neck, no light bands on bill; back and scapulars grayish-white irregularly crossed with zigzagged lines of black; sides and lower belly faintly marked with wavy black bars; fore-belly, speculum, white. Female: feathers around base of bill *white;* head, neck, breast, upper back, and sides brownish; speculum and belly *white.* Length of average male 18.50; average female 17.50. Wing of male about 8.75; wing of female one-half inch less. Weight, when in good condition, 2 to 2½ pounds.

RANGE. A circumpolar species, breeding chiefly north of the tree limit. On the Atlantic in winters from New England to Florida.

RANGE IN NORTH CAROLINA. Winter resident, chiefly along the coast.

The Greater Scaup Duck is known to most gunners as "Big Blackhead" or as "Big Bluebill." Many people confuse it with the Lesser Scaup and the Ring-necked Duck. Hence, it may be well for the bird student to read carefully the description given in small type above. The birds dive for their food and often may be seen in the ocean outside the surf where they go to the bottom for the shellfish upon which they feed, in common with Old Squaws, scoters, and others. In Pamlico Sound and near-by water, usually they are much in evidence. In some winters, on New River, Onslow County, the Greater Scaup occurs in considerable numbers in association with its smaller relative.

Although these birds generally seek fresh-water bodies during the summer, with us they prefer to pass the winter where the water is salt or brackish. The Greater Scaup comes to our rivers and inland lakes at times. Earl M. Hodel reports them of recent years in Yadkin County.

☆ We add 18 records from 4 coastal and 4 inland points. Inland dates are as late as May 11, and as far west as Wilkes and Yancey counties. ☆

LESSER SCAUP DUCK.

Plate 11

Aythya affinis (Eyton). [149]

DESCRIPTION. Very similar to the preceding species but smaller. Usually it is some two inches shorter in length and the wing is not so great by about an inch. The head of the male, as a rule, shows a *purplish* gloss, and the sides are more strongly marked with wavy black bars. Usually, also, there is less white on the wing. (This description is not

infallible, as in some cases the two species seem to be indistinguishable.) Female: similar to preceding species, but smaller. Well-conditioned adults weigh from 1¼ to 1¾ pounds.

RANGE. Breeds from southern Alaska throughout much of Canada south of the tree limit. Winters on Atlantic Coast from New Jersey to West Indies.

RANGE IN NORTH CAROLINA. Common in winter on both fresh and salt-water bodies.

The Lesser Scaup Duck, known as "Little Blackhead" and "Little Bluebill," is a fairly common winter resident. Throughout the State it may be found in flocks on ponds or lakes of any size, and in the brackish and salt-water sounds it often collects in great rafts. Where protected it quickly loses its suspicion of man, as may be noted at many Florida resorts where it comes about the docks expecting to be fed.

Like the Greater Scaup, it at times feeds extensively on shellfish, which results in its flesh becoming very "fishy." At other times it is highly palatable. Pearson and Walker saw six of these birds on Kitty Hawk Bay, June 22, 1939.

☆ This is the more abundant scaup (October-April). Some are noted during the summer and injuries may account for some of this. They are found inland as far as Ronda, Highlands and Lake Junaluska. ☆

Genus **BUCEPHALA** Baird.

AMERICAN GOLDEN-EYE: WHISTLER.

Plate 12

Bucephala clangula americana Bonaparte. [151]

DESCRIPTION. Male with head and throat black, glossed with *green;* a *roundish white patch* between eye and base of bill; whole neck, breast, belly, speculum, most of scapulars and wing-coverts, white; rest of upperparts black; female with head and neck brown, and without the white spot in front of eye. Length 18.50-23.00; wing 9.00. Weight, average, about 2 pounds.

RANGE. Breeds from Alaska and Labrador south to North Dakota and New York. Winters to Lower California and South Carolina.

RANGE IN NORTH CAROLINA. With us from October to March. Usually seen on coast but occasionally inland. Noted at Asheville.

Although American Golden-eyes in winter occur on fresh-water bodies to some extent, they seem to prefer the salt and brackish waters of the coast. Usually we see them in small, scattered flocks, often only two or three together. When they fly the male especially shows much white in the plumage. They are fond of small mussels which they secure by diving; consequently, their flesh is not palatable to man. Although coming to this State every winter, they are by no means an abundant species. On Mattamuskeet Lake, which is fresh water, Greene saw a flock of fifteen on December 9, 1934. Pearson and Walker observed at close quarters a female golden-eye near the Manteo bridge, June 21, 1939.

Inland records of recent years include Brown's observations of two on Lake Brandt, near Greensboro, December 29 and 30, 1930; Odum saw specimens at Chapel Hill, March 26 and April 2, 1933; Craighill has found them on the city lake at Rocky Mount, Nash County, once in 1934, once in 1935, and three times in 1937. All his records were made in December with the exception of one,

March 22, 1937. The Brimleys reported their presence at Raleigh, May 2, 1936, and January 21, March 9, November 18, and December 27, 1937.

☆ We add 31 records, from 5 coastal and 5 inland points. Some of the inland records are for late migration, i.e., Raleigh, May 5th. ☆

Barrows Golden-eye (*C. islandica*, Gmelin) is a western species, the male of which has a *purplish* black head, and a white *crescent* or *traingular-shaped* patch between the eye and the bill. It does not seem to occur in the State for, although it has been reported on several occasions, all the specimens that we have been able to trace have proved to be American Golden-eyes.

BUFFLEHEAD.

Plate 12

Bucephala albeola (Linnaeus). [153]

Description. Male with head and upper neck black with metallic tints and with a large white patch running from the lower cheeks over the top of head; lower neck, underparts, wing-coverts, secondaries and outer scapulars white, rest of upperparts black. Female: duller with grayish-brown instead of black and with the white spot behind the eye much smaller. Length 12.25-15.25; wing 6.00-7.00. Weight of male, 8 ounces to one pound; female, much smaller.

Range. Breeds from Alaska and Hudson Bay southward to Iowa. Winters from Alaska and Maine to the Gulf Coast.

Range in North Carolina. Winter resident where lakes or other open waters are found.

When the Bufflehead appears in the autumn, it is usually exceedingly fat; hence has arisen the not inappropriate name of "Butterball," as used by many gunners. These little ducks often travel in groups of a dozen or less. When diving for their food, some of the company are always on guard at the surface, for the feeding birds may remain under water for twenty seconds at a time. They consume small fish, sea worms, insects, and shellfish. Their movements are amazingly quick, as sometimes when they have been feeding on the bottom they take flight instantly as they rise with a rush to the surface.

When disturbed they usually proceed in small compact bands at a short distance above the water, their wings beating with great rapidity. Although this is a very small duck, it seems surprising that the female can readily pass through the entrance hole of a flicker's nest, which is only three or three and a half inches in diameter. However, in western Canada its eggs have been found in such cavities.

The Bufflehead is not seen in North Carolina until November as it prefers to linger in the North until driven from its summer habitat by the freezing of the inland waters. The female of this species, together with the female Green-winged Teal, are our smallest ducks.

Walker recorded about 2,500 on Pea Island, winter 1940-41. Miss Huger reported it at Highlands, November 1, 1912; Odum found one at Chapel Hill, November 17, 1933; and Brown at Greensboro noted its presence on November 29 and December 29, 1930. The latest spring record given by the Brimleys for Raleigh was March 16 (1937); and on the lower Cape Fear River, Fleisher found one April 15 (1919). Burleigh, at Asheville, saw Buffleheads as late in spring as April 8 (1930).

☆ We add 67 records, from 6 coastal and 9 inland points. Larger flocks are seen on the coast. Inland records extend to Highlands and as late as May. ☆

Genus **CLANGULA** Leach.

OLD SQUAW.

Plates 8 and 12

Clangula hyemalis (Linnaeus). [154]

DESCRIPTION. Male: most of head and neck, upper back, scapulars, flanks, and belly white; sides of back, of head, and of upper neck, wings, most of back, breast, and upper belly, black; *tail pointed, middle tail-feathers long and narrow.* Female: mostly black above, the head and neck whitish, breast gray; belly white; tail pointed but the middle feathers not lengthened. Length 16.00-21.00; wing 8.50; tail 2.50-8.00.

RANGE. Breeds mainly in the Arctic regions of Europe, Asia and North America. Winters on the Great Lakes and along the Atlantic Coast from the Gulf of St. Lawrence to North Carolina.

RANGE IN NORTH CAROLINA. Coastal region in winter, occasional inland.

Birds with outstanding personalities naturally receive various local names. Thus the Old Squaw is regionally known as "Long-tailed Duck" and "South Southerly," and at Cape Hatteras, "Knock Molly." It is a common winter resident in our sounds and bays and occasionally is seen inland.

Fig. 21. Old Squaw (adult male).

C. S. Brimley recalls one that was killed in Wake County in the winter of 1909-10, and brought to him for identification. The records of late years which he gives for it in Wake County are: March 2, 9, and 30, 1936; December 21, 1937; and January 28, 1938. We have found the birds along the coast in summer adorned with full spring plumage, but doubtless these had been injured during the winter shooting and were unable to leave when their companions moved north in spring.

Many years ago Dwight W. Huntington wrote this truthful summary of the Old Squaw: "It is a swift flyer, expert diver, a fish-eater and a tough, undesirable bird for the table." It is, nevertheless, a handsome duck and a pleasing sight on the water or in the air.

☆ This bird is rather common, not in large numbers, along the coast and scattered inland as far west as Elkin, in winter. ☆

Genus **SOMATERIA** Leach.

KING EIDER.

Somateria spectabilis (Linnaeus). [162]

Description. Male with head, neck, upper back, breast, sides of rump and wing-coverts, white or whitish; top of head bluish-gray; cheeks greenish; front and sides of breast tinged with yellow; a V-shaped mark on throat and rest of plumage black. Females are light brown barred with darker. Length 23.00; wing about 10.80. The sides of bill in the male are enlarged at base into a very conspicious broad lobe.

Range. Breeds from Greenland to Alaska and south to James Bay; winters along Atlantic Coast, rarely south of Long Island.

Range in North Carolina. Occasionally found on our coastal waters.

The King Eider chiefly inhabits the northern seas. By diving to submarine ledges and shoals, it finds shellfish upon which it largely feeds. Its flesh is strong and rank. Usually it is found offshore in the open sea.

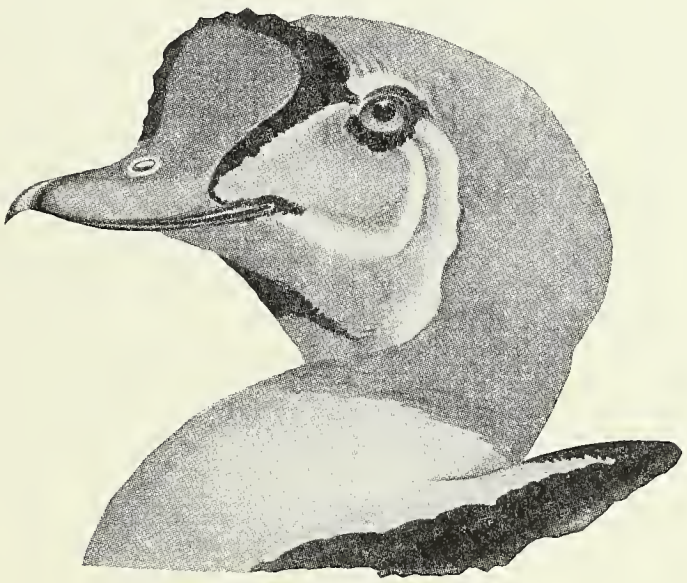


Fig. 22. King Eider (adult male).

We have knowledge of it coming to North Carolina waters on a few occasions. A flight reached our shores in December, 1908, of which four were killed at Oregon Inlet, Dare County, on the 4th, and two at Pea Island on the 16th. These specimens have been preserved. W. B. Haynes took one near Bodie Island Light, December 1, 1921. Griscom reported one killed by Stephen Whitney at

Pea Island, December 14, 1924; in Onslow County a female was secured by Samworth and sent to the State Museum late in November, 1936.

The American Eider, Plate No. 12, (*S. mollissima dresseri,* Sharpe.) may possibly occur in winter. The head of the male is black and it does not have a black V on the throat; the female can be distinguished from other female eiders by the feathering on the sides of the bill which reaches foreward to the nostril.

Genus **MELANITTA** Boie.

WHITE-WINGED SCOTER.

Plate 12

Melanitta fusca (Bonaparte). [165]

DESCRIPTION. Male with a small spot below and behind eye and the speculum white, otherwise black; bill orange, black at base. Female: brown, lighter below; distinguished from other scoters by the white *speculum*. Length 22.00; wing 11.00.

RANGE. In North America, breeds in North Dakota and from Quebec westward to British Columbia and Alaska. Winters from the Gulf of St. Lawrence to North Carolina.

RANGE IN NORTH CAROLINA. A local winter visitor along the coast.

The White-winged Scoter is one of the "Sea Coots" that in late autumn arrives in the waters of this State to pass the winter. It frequents the sounds and often occurs in the ocean off shore from our outer beaches. Although usually seeking inland lakes in summer, with us it unquestionably prefers the sea and the salt-water sounds during its winter sojourn. The bird is very prolific, as many as twenty eggs having been found in one nest. This is a very large duck. Males have been taken weighing as much as four and three-quarters pounds. Females usually run to more than three pounds.

In autumn mixed flocks of scoters are often seen flying southward along the coast just outside the beaches. White-wings were taken at Pea Island, by Bishop, February 7 and 18, 1901; and Walker has reported them at Pea Island as late as early April; Samworth saw others at the mouth of New River in Onslow County in December, 1932; and Greene found three at Lake Mattamuskeet, December 9, 1934. Craighill records a female near Rocky Mount on December 30, 1938. The small number of these recorded observations should not be construed as indicating that the bird is rare in North Carolina. A male that lingered for the summer of 1939 was seen by Pearson and Walker on the ocean beach near Killdevil Hills, June 22, 1939.

☆ The added records indicate a wide dispersal of this bird along our coast in winter. Small numbers are the rule. ☆

SURF SCOTER.

Plate 12

Melanitta perspicillata (Linnaeus). [166]

DESCRIPTION. Male with a large *white spot* on the *crown* and another on the nape, otherwise black; female with the plumage mostly brown above, whitish below, the feathers along the midriff of the upper bill extending nearly to the nostril. Length 18.00-22.00; wing about 9.50.

RANGE. North America, breeding from southern Canada northward; winters from Nova Scotia to Florida.

RANGE IN NORTH CAROLINA. Coastal region in winter.

The Surf Scoter is smaller than the White-winged, and has the habit of holding its wings raised as it glides to a stop upon alighting on the water. The male may be further distinguished by the two white spots on the head, because of which fishermen often refer to it as the "Skunkhead."

In winter these scoters feed largely on black mussels, small clams, and scallops which they often swallow whole. To gather food they readily dive forty feet or more to the bottom. Coues noted these birds in Carteret County early in November, 1871. Bishop wrote that Surf Scoters in large numbers visited the neighborhood of Pea Island, Dare County, May 15, 1901; Samworth took a male in Onslow County, January 8, 1932; three were noted near Swanquarter by Earle Greene, December 16, 1934; and Craighill saw one at Nags Head (probably a crippled bird) in June, 1936. E. L. Green, Jr., estimated that 18,000 were in the neighborhood of Cape Hatteras, January 10, 1938.

☆ Groups of up to 200 are seen on our upper coast and smaller groups as far south as Wilmington in winter. Two inland records were Greensboro (April 29) and Rocky Mount. ☆

Genus **OIDEMIA** Fleming.

AMERICAN SCOTER.

Plate 12

Oidemia nigra americana Swainson. [163]

DESCRIPTION. Male with the plumage *entirely black*, with upper mandible orange at the base; female with upperparts and chest brown or brownish; both sexes show whitish under-wing feathers while in flight; underparts whitish, distinguished from the Surf Scoter by the feathers on the culmen not nearing the nostril. Length 19.00; wing 9.00.

RANGE. North America and eastern Asia, breeding far northward. Winters along Atlantic Coast regularly from Newfoundland to New Jersey, sometimes farther south.

RANGE IN NORTH CAROLINA. Occasional on our coast in winter.

These birds seem to love the stormy, boisterous sea, and the deep-dipping, tumbling waves hold for them no terrors. When swimming within range of a field glass it may be seen that they hold their heads in such a manner that their bills point straight forward or even tipped slightly upward rather than at a downward angle as is characteristic of the other scoters.

Among our State records for this duck, it may be mentioned that Coues recorded it as common near Fort Macon, Carteret County in 1871; Fleisher found three near Southport, April 14, 1919; and H. H. Brimley saw one at close range on New River, Onslow County, July 24, 1924, which probably was a crippled bird left behind by the spring migration flight. Greene noted five on December 16, 1934, at Swanquarter, Hyde County.

☆ New records are for Beaufort, Wilmington (7 times in December) and Fort Macon (June 29). ☆

Genus **OXYURA** Bonaparte.

RUDDY DUCK.

Plates 8 and 12

Oxyura jamaicensis rubida (Wilson). [167]

DESCRIPTION. Male with top of head black, cheeks and chin white, throat and upper back chestnut, breast and belly silvery white; lower back blackish; tail-feathers *stiff and pointed;* in breeding plumage bill vividly blue; female and immature with upperparts grayish-brown, the underparts whitish. Length, average, 15.00; wing about 6.00.

RANGE. Breeds more or less regularly from Texas to British Columbia. Along the Atlantic Coast winters usually from Chesapeake Bay to West Indies.

RANGE IN NORTH CAROLINA. Coastal region in winter, sometimes inland.

The Ruddy Duck, once regarded as almost worthless by market gunners, later became so high priced that it was almost exterminated before its shooting was reduced by law. "One of the Currituck Sound duck-hunters in those days was St. Clair Lewark. In the month of November, 1905, he, with three companions, received $1,700 for the 2,300 Ruddy Ducks that they shot and sold for shipment. The price for these birds had gone up recently. Only a few years previously they could have realized only $88 for such a kill." (Pearson, *Adventures in Bird Protection,* p. 117.)

Few ducks have as many vernacular names, more than 100 having been published. In Currituck Sound, for example, it is known as "Booby," a name that has been recognized in the county game laws. Today Ruddies are found in winter along our coast in limited numbers from Onslow County northward. They are small ducks that rise from the water by running a short distance along the surface and when swimming, the male, especially, spreads his tail fanwise and holds it rigidly upward. With us, this species rarely flies over land, but will pass near a boat rather than do this.

Green records them at Mattamuskeet Lake, one on October 28 and three on December 25, 1934; one on January 9, 1935; and five on October 22 and one on October 28, 1936; C. S. Brimley and Grey have observed the species at Raleigh in winter; and Odum said that in Orange County they were "regularly observed" in the winter of 1932-33. H. H. Brimley saw several hundred on New River, Onslow County in March, 1937. Burleigh has seen these birds at Asheville, October 24 to April 2.

☆ Coastal records are to Wilmington (April 21st). Inland there are records to Charlotte and Elkin (October-May). Two pairs nested at Pea Island in 1953. ☆

Genus **LOPHODYTES** Reichenbach.

HOODED MERGANSER: HAIRY-HEAD.

Lophodytes cucullatus (Linnaeus). [131]

DESCRIPTION. Male with head, upper neck, and back black; the head with a large *fan-shaped crest,* the center of which is white, the outer edge black; underparts mostly white; female with head, neck, and upperparts grayish-brown; underparts mostly white; crest much smaller than in the male. Average length 17.50; wing about 7.50.

Range. North America, said to breed throughout its range, but only quite rare and locally in the South.

Range in North Carolina. Winter visitor, commonest on the coast. One breeding record.

Like the Wood Duck, the "Hairy-head" particularly enjoys wooded ponds and slow-moving streams. In the summer it always seeks forested regions where trees with holes may be found for nesting purposes. The eggs are noticeably different from those of other ducks, being almost round and the shell is ivory-white instead of pale yellowish or greenish. This bird feeds on small fish, water insects, snails, crayfish, tadpoles, and to some extent vegetable matter, such as roots, small acorns, seeds, etc. Its flesh is not very palatable and is little desired by hunters, except when it has been feeding on acorns.

Fig. 23. Hooded Merganser (adult male).

In December, 1910, Sherman and H. H. Brimley saw several groups aggregating from fifty to one hundred individuals on White Lake in Bladen County. In January, 1911, H. H. Brimley observed five on Lake Ellis, feeding as they dived in water not more than ten inches deep. Frequently three of the five were under water at the same time.

This is distinctly a North American species. While with us it passes the winter in the more quiet waters along the coast and may be found inland wherever ponds or lakes exist. According to Odum's observations the time of its residence in Orange County is from November 5 to March 12. It is not uncommon at Raleigh during the winter, and has been noted in Guilford County and other inland sections. Many new artificial ponds and lakes have been created in the State during the past twenty years, and as these offer attractive feeding and resting places for waterfowl, the inland distribution of the little mergansers in winter doubtless has been increasing.

Throughout the United States many observers hold that there has been a steady decline in the abundance of these birds for several years. The decrease is supposed to be due to the extensive clearing of swamps and trees along lake shores and rivers, which has thus deprived the species of adequate nesting places.

Although Audubon quotes Bachman as finding the Hooded Merganser with young in South Carolina in 1838, and records have been made of its breeding on rare occasions in Arkansas, Tennessee, and Florida, neither eggs nor young so far as we are aware, were found in North Carolina until May 9, 1940, when Craighill reported that he and R. M. Harper saw a female with nine young about two weeks old in Swift Creek Swamp ten miles northeast of Rocky Mount in Edgecombe County. He adds: "It was a close and prolonged observation on a small open pool at the edge of the swamp."

☆ We add 72 records among those on the coast being Wilmington (to April 21) and Beaufort (July 3). Another nesting record is for Rocky Mount (May 9, 1947). More inland records are for Highlands (April 15) and the Smoky Mountain area (December and January). ☆

Genus **MERGUS** Linnaeus.

Two species of this genus of slender-billed ducks occur in North Carolina.

AMERICAN MERGANSER: GOOSANDER.

Plate 13

Mergus merganser americanus Cassin. [129]

DESCRIPTION. Male with head, upper neck and back black, head with greenish tint; lower neck, underparts, secondaries and most of wing-coverts white; primaries black; female with the head and upper neck reddish-brown, except the chin and upper throat, which are definitely and abruptly white; underparts white; rest of upperparts ashy-gray. Length 25.00; wing 10.50; weight 3 to 3¾ pounds.

RANGE. North America, breeding chiefly in Canada, wintering from southern Canada southward.

RANGE IN NORTH CAROLINA. Winter visitor. Once recorded breeding.

This, the largest of our "fish ducks," is not a very common species in the State. Most of those seen were said to be females, and as these closely resemble the females of the next species some misidentifications may have been made. The "Sheldrake," as this bird is sometimes called, is a large, long-bodied bird, and the extensive white and black areas in the plumage of the male render it a very conspicuous object. A flock of these mergansers, running along the surface with flapping wings as they rise in the air, is a stimulating sight to witness.

Anglers who whip northern streams with their trout or salmon lures, speak harshly of this bird because of its fish-eating habits, and southern sportsmen usually avoid wasting a charge of shot on it because the strong, dark flesh is unfit for food; but to the bird lover, field glass in hand, it is a fowl to be sought with eagerness.

This merganser breeds in the northern States and Canada. Although various writers have indicated that the eggs are laid in hollow trees, this is not an invariable rule. On islands in Lake Champlain, New York, Pearson, in June, 1914, found three nests, one in a small rock grotto at the edge of an escarpment, one

AMERICAN MERGANSER. *Male and Female.*

on the ground under low overhanging evergreen boughs, and one on a level with the ground in the hollowed-out butt of a tree.

These handsome ducks have been reported by competent observers at many places inland. As examples, at Asheville, Raleigh, Greensboro, Rocky Mount, and White Lake. Grover Quinn, Jr., secured a live specimen at Cape Hatteras, June 26, 1939. Late in May, 1938, R. E. West found an American Merganser's nest in a stump at Bennett's Pond, Chowan County. Both parents and five young were observed.

☆ New coastal records extend to Wilmington, as late as April 21. Inland records extend as far as High Point, and as late as March 31. ☆

RED-BREASTED MERGANSER.

Mergus serrator Linnaeus. [130]

DESCRIPTION. The male is much like the corresponding stage of the preceding, but the head is conspicuously crested and the white of the neck is separated from that of the underparts by a broad rufous band speckled with black across the breast, while the female is similar to the female of the American Merganser, but the throat is somewhat paler than the surrounding region. Both sexes are smaller than the preceding. Length 22.00; wing 9.00; weight 2 to 2½ pounds.

RANGE. Breeds from arctic Alaska to New England on the Atlantic Coast. Winters from Maine to Florida.

RANGE IN NORTH CAROLINA. Winter visitor, commonest on the coast.

Slightly smaller than the preceding species and, to the minds of some, not so richly colored, the common "Fisherman" Duck nevertheless is a very handsome bird. Its summer home is in much the same region as the "Sheldrake," but unlike that bird it seems invariably to make its nest on the ground. A number of years ago while brant shooting in Pamlico Sound, H. H. Brimley noticed that although other ducks occasionally drew near with the apparent intention of alighting among his brant decoys, these mergansers always settled at some little distance. In fact, their usual actions even left some doubt as to whether the decoys were really responsible for their approach. In some places, however, decoys were specially painted to be used in hunting this bird when other ducks became scarce. In flight they present an easy mark, but when resting on the water it is a far more difficult task to shoot them, so low do they sit in the water. They arrive on the North Carolina coast mainly in October, and April is their favorite month for departing.

The flesh is strong-tasting and fishy, and not highly regarded as food. There is an old saying on Cape Hatteras, "One Fisherman Duck will make nine gallons of soup"—a tribute indeed to the potency of its flavor.

Sherman and H. H. Brimley observed Red-breasted Mergansers daily for a week at White Lake in Bladen County, during December, 1910. Some of the records of their appearance inland are: Raleigh, November 6-9, 1935 (C. S. Brimley); Chapel Hill, December 23, 1933, and January 2, 1935 (Odum). They may appear on almost any North Carolina lake of a few acres or more in extent. E. L. Green, Jr., wrote (1938): "This bird probably is the most abundant species [of duck] through the winter season in the Cape Hatteras region."

Among the tens of thousands seen on North Carolina waters by H. H. Brimley during the past forty years, he remembers very few in the full, black-headed adult male plumage.

Many of these birds do not leave the State upon the approach of the breeding season. June 7 to June 22, 1939, Pearson, always with one or more companions interested in ornithology, systematically covered most of the beaches and water areas of North Carolina from South Carolina to Virginia. Red-breasted Mergansers were seen daily throughout this tour.

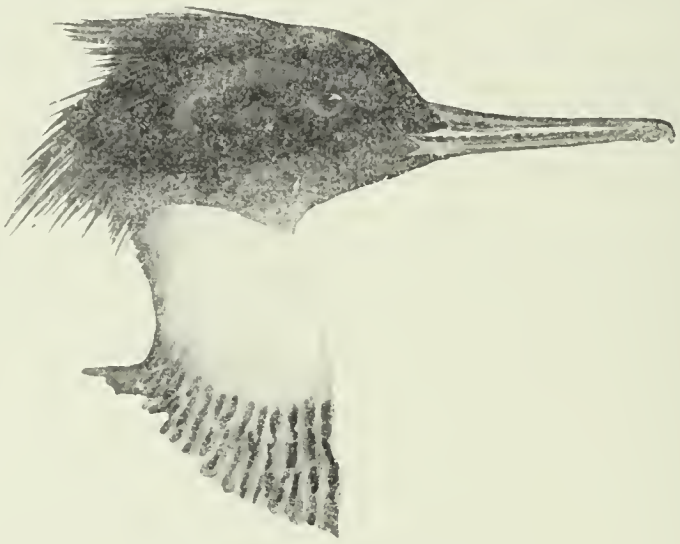


Fig. 24. Red-breasted Merganser.

☆ New records support the abundance of this bird all along our coast. It occurs as far inland as Winston-Salem and Tryon, and as late as May 10. ☆

Order **FALCONIFORMES.** Birds of Prey.

The birds of this order have strongly hooked beaks; the upper bill is covered at the base with naked skin through which the nostrils open; and the four toes, except in the vultures, are armed with sharp, curved claws.

Family **CATHARTIDAE.** American Vultures.

All species of the family *Cathartidae* are found only in the New World, two of which are resident in North Carolina.

Vultures feed almost wholly on carrion which they discover by means of their power of sight. Their eyes are extremely sharp and from far aloft these rangers of the clouds are able to discover the body of a deceased deer, cow, or other animal which awaits their attention on the earth below. Rarely they attack the young of some birds or mammals.

The development of their wing and pectoral muscles is such that their power of sustained flight is very great, although they lack the ability to engage in the quick action required by those species that depend for their food on the capture of living creatures. They are silent birds, never "screaming" as do the eagles and many other raptores. A low hiss or grunt, given when a flock is contending over its food, are about the only sounds one ever hears.

These are all large birds, which have the hind toe short and elevated, the claws blunt and slightly curved. The head is naked. Among the members of this family are some of the largest flying birds in existence; for example, the condors of South America, which have a wing-expanse of eight and one-half feet, and in exceptional cases measure as much as eleven feet.

Genus **CATHARTES** Illiger.

TURKEY VULTURE: TURKEY BUZZARD.

Plate 14

Cathartes aura septentrionalis Wied. [325]

DESCRIPTION. Plumage black, the feathers of the wings and back so broadly edged with brown as to give the bird a brownish tone. Skin of head and upper neck *red in adult*, especially in the breeding season; head dusky in young. Length about 2½ feet; expanse of wings about 6 feet, tail one foot; weight 4 to 5 pounds.

RANGE. Southern Canada to northern Mexico. In winter, birds along the northern third of its range move southward.

RANGE IN NORTH CAROLINA. Common resident, rare in mountains in winter.

The Turkey Vulture is one of our best-known birds. With infinite grace, it soars over the forests and fields hopefully scanning the earth for the carcass of some animal upon which to feed. Again it sweeps low over yard and garden looking for the head of a chicken, or we may see it on the highway where it has alighted to enjoy the remains of a bird, snake, or tortoise killed by a passing car. In Florida, Pearson came upon one engaged in killing and eating young pigs at the moment of their birth.

Its grace of motion vanishes upon alighting on the ground, for its movements here are awkward and ungainly. Although solitary by day, unless attracted by the discovery of food, it seeks the society of its kind upon the approach of night. "Buzzard roosts" are known in many communities. During a rain, it generally remains perched and on quiet days shows little activity, for without air currents it has difficulty in soaring. In the morning or after rains it dries its feathers by standing on some tree, stake, or house, with wings widely extended.

Our Turkey Vulture makes no nest but lays its eggs on the ground, or fallen leaves, in some hollow log, tree butt, or perhaps under a mass of fallen limbs. The two eggs, deposited as a rule in April or May, are handsomely marked, and require thirty days for hatching. The young at first are clothed in white down; they remain in the nest two months and are fed by regurgitation.

This vulture sometimes carries food short distances in its beak but never by means of its feet.

Except for an occasional low hiss, the adult is a silent bird. The young, when disturbed at their nest, growl and hiss with marked energy. The theory held by

some people that vultures spread anthrax and hog cholera appears to be supported by very little evidence.

☆ Numerous new records confirm the State-wide distribution. On 8 occasions we add records for the Smoky Mountain Park in December and January. New nesting records are for the counties of Gaston, Mecklenburg, Stanly, Anson, Guilford, Orange, Chatham, Wake, Cumberland and Beaufort. ☆

Genus **CORAGYPS** Le Maout.

BLACK VULTURE.

Plate 14

Coragyps atratus atratus (Meyer). [326]

DESCRIPTION. Plumage dull black, the primary quills hoary *whitish on under surface,* their shafts white. Naked skin of *head, black.* Length 23.00-27.00; spread about 4½ feet; tail 8.00.

RANGE. From Kansas, Missouri and Maryland, south to Central America.

RANGE IN NORTH CAROLINA. Greater part of the State, but rare in the mountain regions.

This vulture, often locally called "Carrion Crow" or "South Carolina Buzzard," is more gregarious than the Turkey Vulture, and it often gathers in flocks at the carcasses of large animals. When circling over the place where some animal has died, or when moving about the country, the method of flight consists of short, alternate periods of sailing and flapping of the wings. The Black Vulture seems to pay but little attention to the small carcasses that form a large part of the food of the Turkey Vulture.

Distinguishing marks in flight are the short, square-ended tail, the rigid stiffness with which the wing-tips are held at right angles to the body, and a suggestion of a light-colored area on the under part of the wing. In North Carolina it soars far less than does its slightly larger relative—larger in dimensional measurements, that is, though lighter in weight.

So far as we have been able to determine, the Black Vulture appears not to breed west of Chatham County, which is about 130 miles from the nearest point in the coast. Westward from Chatham, the State extends for about 320 miles and we have no knowledge of a nest being found throughout this area. Cairns regarded the bird "a rare, summer visitor" in the Asheville region, and Pearson found it in Guilford County only in November, December, and January. Oddly enough, no nest has been reported east or south of Wake, although the bird occurs in all that lower part of the State. It may be mentioned that the only nests thus far recorded in North Carolina were in the counties of Chatham, Orange, and Wake; and their locations might be indicated by a circle with a radius of some thirty-five miles. In this area eggs have been found from March 27 to June 21.

In Orange County, Odum found a nest with young, May 5, 1933. In Wake County, the Brimley brothers located nests with eggs on April 20, 1891, April 20, 1893, and April 6, 1896. The eggs taken late in April were well advanced in incubation. Another nest found here, May 7, 1921, contained one young and

was observed by C. S. Brimley and Sherman. Its breeding range in the State doubtless is far wider than has so far been determined.

No nest is constructed; the lightly spotted eggs, normally two in number, are laid on the bare ground or dead leaves usually in a dense thicket of bushes or reeds. The young are naked when hatched but soon become covered with brownish-gray down.

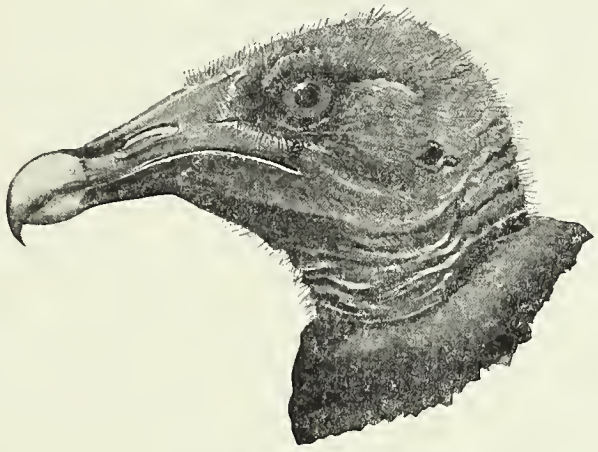


Fig. 25. Black Vulture.

☆ New records confirm the above pattern of occurrence, single records being for Surry, Polk and Swain counties. New nesting records are 2 from Beaufort County, 3 from Mecklenburg County and one from Stanly County. It has been observed that nests of both vultures are most apt to be found by searching in old abandoned farm buildings during March. ☆

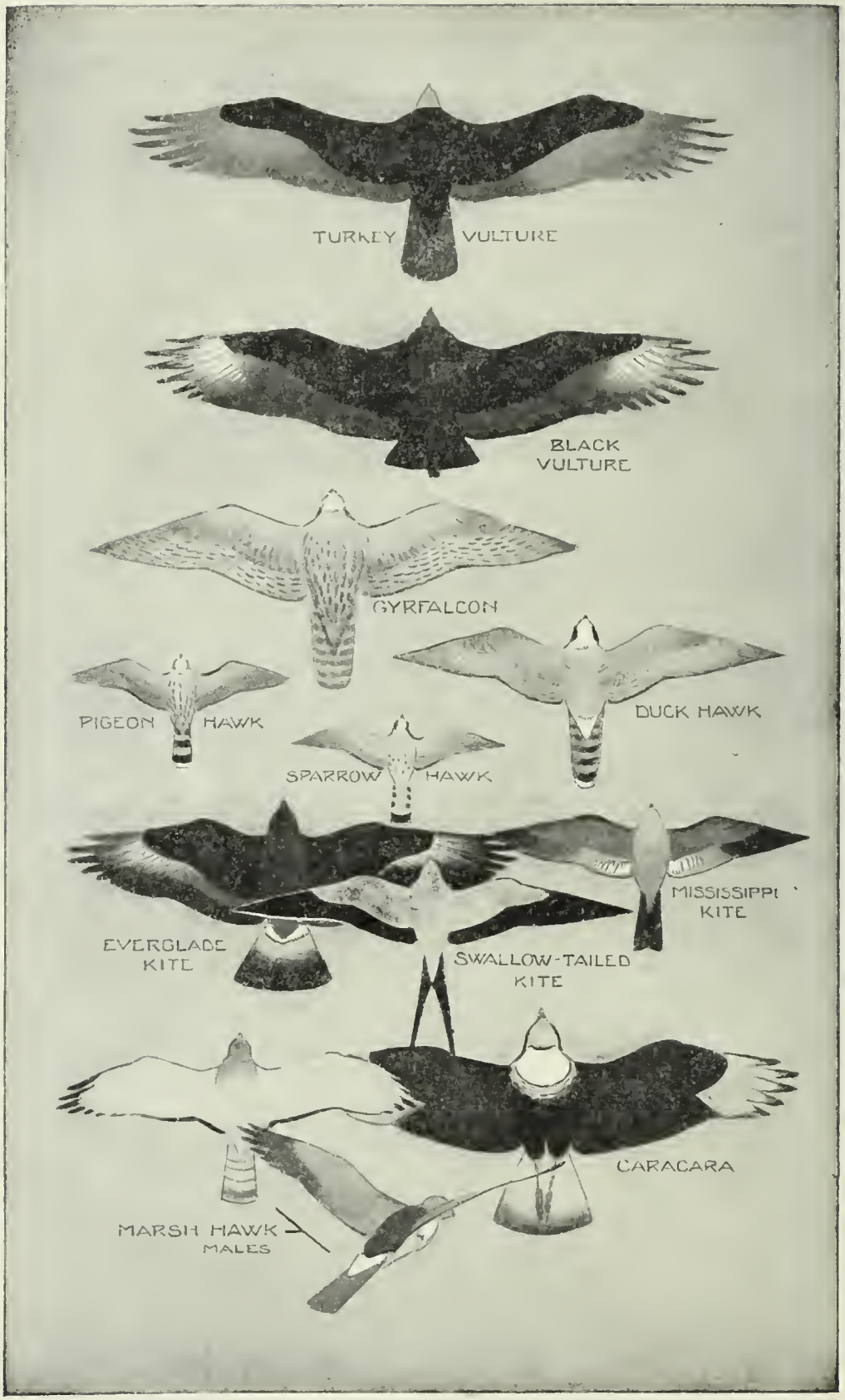
Family **ACCIPITRIDAE**. Hawks, Eagles, and Kites.

This group includes the great majority of the diurnal birds of prey—some four hundred and sixty species being scattered throughout the world.

In North America about fifty species and subspecies of this family are recognized by ornithologists. Of these we have records of sixteen being recorded to date in North Carolina.

Formerly all species of hawks were regarded as injurious to the interests of mankind and in many places were shot by sportsmen and farmers when opportunity offered. Today, with a better understanding of their value as destroyers of rodents, grasshoppers, and other injurious forms of life, most species are protected by law.

A physical characteristic of the birds of this order, which also is shared by the owls, is that the female is larger than the male.



Courtesy of Roger Tory Peterson

☆ Genus **ELANUS** Savigny.

WHITE-TAILED KITE.

Elanus leucurus majusculus Bangs and Penard. [328]

DESCRIPTION. Upperparts, including top of head, nape, rump, upper tail coverts and wings light bluish-ash. Rest of head, the tail, lining of wing, and lower parts pure white; with a black patch just before eye which extends narrowly over eye; large black patch on the shoulders of wings, and with a large quadrate black spot on under-surface of wings. Tail slightly emarginated. Length 16:50; wing 11:80-12:75; tail 7:20-7:80.

RANGE. South America as far south as Argentina, Chile, and Paraguay, where it is a resident, north to southern United States (California, Texas, Oklahoma, and South Carolina). Casual in Alabama, Mississippi, and southern Illinois. Winters in Florida and California south to Central and South America.

RANGE IN NORTH CAROLINA. Accidental occurrence.

Our only record of the occurrence of this species in North Carolina is based on the one specimen reported seen in Davie County (November 21, 1946). It was flying low over a field of lespedeza near the South Yadkin river. ☆

Genus **ELANOIDES** Vieillot.

SWALLOW-TAILED KITE.

Plates 14 and 16

Elanoides forficatus forficatus (Linnaeus). [327]

DESCRIPTION. Head, neck, entire underparts, and rump white; tail black; back glossy bluish-black. Distinguished from all other members of the family *Accipitridae* by the *very deeply forked tail*. Length 19.00-25.00; wing 15.50-17.75; tail 12.50-14.50.

RANGE. Known to breed locally from South Carolina to eastern Texas and Florida, formerly north to Minnesota. Winters south of the United States.

RANGE IN NORTH CAROLINA. Probably breeds rarely in the coastal region from Craven County southward. Of casual occurence elsewhere.

In beauty of flight, only the movements of the Barn Swallow are comparable to those of a Swallow-tailed Kite in the air. It sails and circles in easy curves, and ever and anon sweeps downward toward the treetops with infinite grace and perfection of elegance. In the mating season, its exuberance of spirit seems to know no bounds and when at play with others of its kind it sometimes turns over and over in its graceful aerial evolutions, uttering meantime its plaintive notes. Its dexterity on the wing is one of the marvels of the southern forests and swamplands. It even catches some of its prey while on the wing and frequently eats an insect or a lizard, or even a snake, as with careless ease it passes overhead.

Its nest is placed in the top of a tall tree, often a pine. It is composed of twigs of various sizes and where the long gray moss is available, this is used as a lining. The eggs, two to four in number, are whitish and strongly marked with spots and blotches of various shades of brown.

Where the birds are numerous, they usually breed in small colonies of from three to half a dozen pairs, the nests often being within a hundred yards of each other.

Although we have no knowledge of the nest of a Swallow-tailed Kite having been found in North Carolina, we have strong reason to believe that a few years ago they were breeding at least in Craven County. This conviction is based on the frequency with which, during a period of several years, birds of this species were observed in the neighborhood of Lake Ellis in the months of May and June. The Brimleys saw the species here twice in June, 1905, once in May, 1906, and four times in May, 1907. Philipp saw one in the same region, June 18, 1909. The next year H. H. Brimley was again at Lake Ellis and on June 16 saw four kites. His latest record of them was on May 2, 1911, when two passed overhead. In Columbus County, Pearson, on June 16, 1898, watched a Swallow-tailed Kite sailing about over the Waccamaw Overflow.

In the Santee River Swamp, about eighty miles below Brunswick County, North Carolina, Warden H. E. Welch found a nest with three young in May, 1936 (Sprunt).

☆ We add 4 records as follows: Balsam Mountain (several in July), Buncombe County, High Hampton, Jackson County (October 17), and one near Farmville, Pitt County (May 28). ☆

Genus **ICTINIA** Vieillot.

MISSISSIPPI KITE.

Plate 14

Ictinia misisippiensis (Wilson). [329]

DESCRIPTION. Adult: uniform plumbeous, becoming whitish on head and blackish on tail and wings; young with head, neck, and underparts white, longitudinally striped or spotted with brown. Feet yellow; tail slightly forked. Length 14.50; wing 11.50; tail 6.50.

RANGE. Known to breed in South Carolina, Florida, Louisiana, and Texas. Winters from the Gulf States to Guatemala.

RANGE IN NORTH CAROLINA. Know only as a straggler.

A Mississippi Kite was killed in Cherokee County on May 26, 1893, and reported by Mrs. Donald Wilson, of Andrews. According to Collett, a second specimen was shot in the same neighborhood soon afterward.

This beautiful white-headed "Blue Hawk" appears to be more at home in the air than when perched on a tree. It spends hours sailing through space, circling, dipping, and rising, apparently with the greatest ease. While on the wing it readily catches cicadas and other insects upon which it largely preys. Without troubling to alight it will partake of its food as it floats about the sky.

These kites breed regularly in South Carolina. On February 2, 1936, a specimen was seen by R. C. Murphy near Georgetown, some sixty miles below the North Carolina line.

It is quite possible that a few pairs of them may pass the summer about the forests and waterways of our southeastern counties.

☆ A new record is one seen over a golf course at Southern Pines (October 20, 1949). ☆

Genus **ACCIPITER** Brisson.

Comprises hawks with short, rounded wings, and a long tail; the legs are long, the claws very sharp. The birds are exceedingly swift fliers and have the ability to dart and dodge through the groves and forest with amazing dexterity. Such unusual powers would seem necessary to enable these hawks to capture the small birds upon which they largely prey.

SHARP-SHINNED HAWK.

Plate 15

Accipiter striatus velox (Wilson). [332]

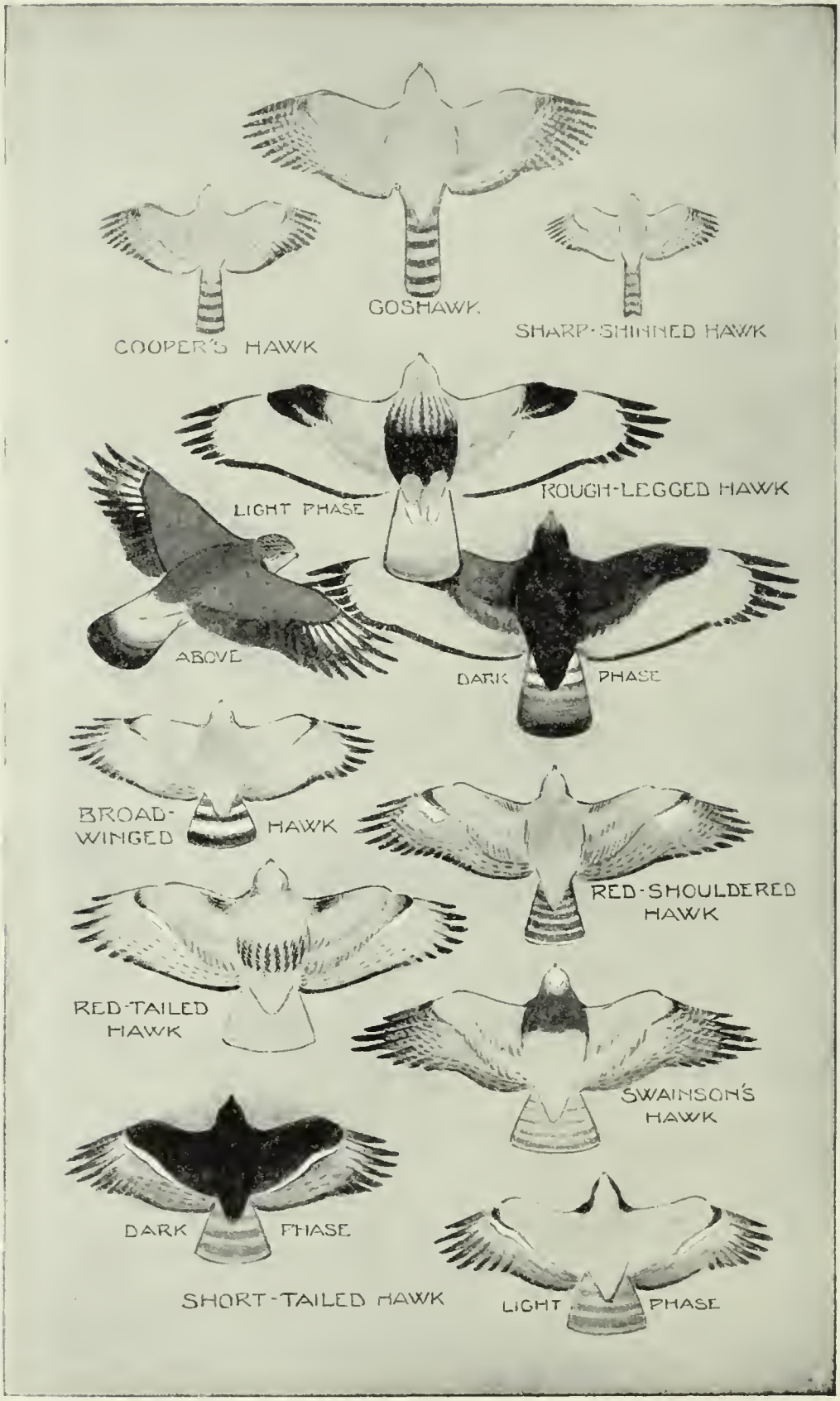
Description. Adults: bluish-gray, underparts white, barred with rufous; immature birds are dusky brown above, the underparts white streaked with brown or dusky, primaries barred with blackish; tail almost *square* at end. Length 10.75 to 14.25; wing 6.50 to 8.25; tail 5.50 to 7.25. The males are noticeably smaller than the females.

Range. Breeds from Alaska to Labrador and south to California and northern Florida; winters from Alaska and New England to Panama.

Range in North Carolina. Resident sparingly at least from Wake County westward, but is a common winter visitor throughout the State.

Fig. 26. Sharp-shinned Hawk.

The Sharp-shinned Hawk, or "Little Blue Darter," is one of the few hawks that confines its diet almost entirely to birds, even killing species as large as itself. The combined reports of nine investigators, who, between 1890 and 1931, examined the stomach contents of 1,039 Sharp-shinned Hawks, reveal the following interesting results. It was found that 106 were empty; 28 contained mice and other rodents; 45 held insects; 16 had been feeding on poultry and game; and 844 had recently eaten small birds.



Courtesy of Roger Tory Peterson

In Wake County, C. S. Brimley found one with a flicker in its possession; in Granville County, Pearson saw one strike down a quail and after a struggle succeeded in fluttering with its victim to the top of a rail fence. This is a very secretive bird, keeping under cover among trees and darting upon its prey with great rapidity. At dusk it glides like a fleeting shadow into some thicket to roost.

Our breeding records for this hawk in North Carolina are five in number. Late in April, 1894, three fresh eggs were brought to Pearson at Guilford College by a boy who had taken them from a nest of sticks and twigs placed in a pine tree about twenty feet from the ground. Three weeks later, he appeared with four more eggs taken from another nest near-by. Both sets probably were produced by the same pair of birds. F. R. Brown found a nest in Mecklenburg County, May 3, 1932. It was in a pine at a height of thirty feet. Brown also reported that the same day a boy shot a Sharp-shin from its nest near Statesville in Iredell County. A nest with four eggs was found at Apex, Wake County, May 5, 1935. The discoverer shot the setting bird and took it with the nest and eggs to C. S. Brimley. Wetmore reports (MS.) an immature found near Boone on July 11, 1939; Burleigh in Buncombe County, on July 25, 1930, watched a pair whose behavior indicated that there were young near-by. Although many Sharp-shinned Hawks appear in the State during the course of the year, we feel justified in regarding it as an uncommon summer resident.

☆ We add 74 records from 25 points as far as Southport on the coast and as far west as the Smoky Mountain Park. These dates and places confirm the above range. A new nesting record is from Mount Airy (June 29). ☆

COOPER'S HAWK.

Plate 15

Accipiter cooperi (Bonaparte). [333]

Description. Similar to the preceding species, but decidedly larger, tail inclined to be rounded with outer tail-feathers shorter than the central ones. Male: length 14.00-18.00; spread 27.00-30.00; female: length 16.50-20.00; spread 29.00-36.00; wing 8.85-11.00.

Range. Breeds from southern Canada to Mexico. Winters from northern United States to Costa Rica.

Range in North Carolina. Whole State, more numerous in fall and winter.

The Cooper's Hawk is known to many hunters and farmers as "Big Blue Darter." It is also one of the so-called "Chicken Hawks," and is the species that most frequently visits the farmyard and carries away young chickens, often coming daily while the supply lasts. It is very bold and at times pursues its prey through dense thickets, turning and twisting with great dexterity. Pearson recalls one that went under his father's house, where it seized and bore away a "frying-size" chicken; and another occasion when one flew into the sitting room after a quail which, in wild frenzy had dashed through the open doorway. In 1935 and '36 he closely watched a brood of young Cooper's Hawks for some weeks, and found their food consisted wholly of birds, including the bluebird, flicker, and Hungarian Partridge. All were picked absolutely bare of feathers before they were brought to the young.

The Cooper's and the Sharp-shinned are very destructive in the quail fields of the State. It is often difficult to distinguish between these hawks, as a female Sharp-shinned and a small male Cooper's Hawk are not far from the same size, and the plumages of the two birds bear a striking resemblance.

Pearson caused an examination to be made of the stomachs of 22 Cooper's Hawks killed at Cape May, New Jersey, in the autumn of 1933, and found them to contain the remains of 30 birds and one insect.

This hawk appears to breed throughout much, if not all, of the State. We have positive evidence of nests being found in the counties of Alexander, Beaufort, Buncombe, Cumberland, Guilford, Iredell, Mecklenburg, Orange, and Wake. Usually the nest is placed in the main fork of a tree, at from thirty to forty feet from the ground. The eggs, pale bluish-white, have few, if any, markings, and the number deposited varies from three to six.

Fig. 27. Cooper's Hawk.

E. L. Green, Jr., regards this species as the most abundant hawk in the Cape Hatteras State Park. He states "at least ten pairs nested in the wooded areas" of the Park, in the spring of 1936.

☆ New records confirm the "whole State" range. New nesting records are for the counties of Bertie, Edgecombe, Pender, Chatham and Randolph. ☆

NOTE: The Eastern Goshawk (*Astur atricapillus atricapillus*) is a northern bird breeding mostly in Canada, but in cold winters comes to the United States in large numbers. It has

SWALLOW-TAILED KITE.

been recorded in Virginia, and may appear rarely in North Carolina. It is about two feet in length. The adult is bluish-gray on the back with white underparts, evenly marked with wavy lines of dark gray. The male is about 22.00 inches in length, and the female 24.50. It is a great destroyer of quail, grouse, and pheasants, and for fierceness and prowess bears about the same relation to the Cooper's Hawk that a puma does to a wildcat.

Genus **BUTEO** Lacepede.

EASTERN RED-TAILED HAWK.

Plate 15

Buteo jamaicensis borealis (Gmelin). [337]

Description. Dark brown above; white beneath, much marked with rusty on the breast, such markings being heaviest on the belly. Tail rufous above the subterminal black band in adult, but in the immature the brown of the tail is crossed by nine or ten narrow bands of blackish. Tarsi feathered in front halfway to toes. Length 19.00-25.00; wing 13.50-17.75; spread 49.00-57.50; tail 8.50-10.50. Weight 2 to 4 pounds.

Range. Breeds from Saskatchewan and Newfoundland to northern Florida and Texas. Winters from the northern States to Mexico.

Range in North Carolina. Whole State at all seasons, more common in autumn and winter.

This is the largest of the hawks commonly seen in North Carolina. To many it is known as "Hen Hawk" or "Squirrel Hawk." It gets its book name from the coloring on the upper side of the tail of the adult, the red being very noticeable when viewed from the rear or at certain angles when the bird is soaring.

The Red-tail likes to perch on trees overlooking a field where it can watch for its prey on the ground. To farmers it is useful because of the rats, mice, and grasshoppers it destroys. In North Carolina, therefore, it is protected by law. Being a slow-flying hawk, it is not able to catch many birds, but the few it takes are mostly quail, pheasants, and now and then a hen that wanders too far afield. McAtee of the U. S. Fish and Wildlife Service reported that in 754 stomachs examined, 654 were found to contain rodent remains (mice, rats, rabbits, etc.), and 165 yielded remains of reptiles, batrachians, and insects, and 145 contained poultry or birds.

Generally the nest is built in the crotch of some large tree, frequently an oak, and at a height of from 40 to 60 feet. Occasionally a nest is used by the same pair for several years. It is a bulky structure of small sticks lined with finer material. The eggs, usually laid in April, are two to four in number, dull white, and more or less marked with irregular spots and blotches of varying shades of brown.

We know of four Eastern Red-tails taken in North Carolina that carried bands from the northeastern States. One of these shot in Yadkin County in March, 1931, had been banded at Rhinebeck, New York, April 1, 1927.

☆ There are 107 new records to substantiate the above "Range". As a rule, only a small number of birds are seen at any one time and place. New breeding records are from the counties of Beaufort, Cumberland, Wake, Chatham and Mecklenburg. ☆

FLORIDA RED-TAILED HAWK.

Buteo jamaicensis umbrinus Bangs. [337f]

DESCRIPTION. Similar to the Eastern Red-tail but with the dusky markings on underparts more strongly developed, the markings extending on to the throat: terminal black bar of tail much broader, usually an inch or more wide.

RANGE. Florida, north to North Carolina.

RANGE IN NORTH CAROLINA. Known only from the vicinity of Rocky Mount.

To Randolph Butler, a young bird student and taxidermist of Rocky Mount, was brought a Red-tailed Hawk, the plumage of which was so dark that he thought it must be an example of the subspecies known as the Florida Red-tail. It was killed on January 21, 1939. As soon as Francis H. Craighill saw it, he knew the young man's identification was correct. He thereupon secured it, together with another mounted hawk in the neighborhood which was similarly colored, and took both birds to the State Museum in Raleigh. H. H. and C. S. Brimley, and also Oberholser of the U. S. Biological Survey, examined them; all confirmed the original identification. Oberholser added that these specimens furnished the first positive evidence that this subspecies had ever been found outside of Florida.

☆ One was collected at Wilmington on June 8, 1953. ☆

NORTHERN RED-SHOULDERED HAWK.

Plate 15

Buteo lineatus lineatus (Gmelin). [339]

DESCRIPTION. Dark brown; white beneath, the breast in the adult barred with white and rust-red; tail with narrow bars of white. *Four outer primaries notched*, wing-coverts rufous. Immature birds with the breast streaked with dark brown; tail dusky, barred with dull buffy. Length 17.75-19.75; wing 12.25-13.75; spread about 3⅓ feet; tail 8.25-9.25.

RANGE. Breeds from Ontario to Nova Scotia and south to Kansas and North Carolina. Winters from the northern States to the Gulf Coast.

RANGE IN NORTH CAROLINA. Resident, at least east of the mountains, perhaps mainly a winter visitor elsewhere.

The Red-shouldered Hawk is often seen by wooded streams and edges of swamps. In fact it is more of a woodland species than its larger relative, the Red-tail, which superficially it somewhat resembles. It also is one of the so-called "Chicken Hawks." It preys upon frogs, crayfish, insects, snakes of many kinds, and great numbers of field mice and rats. On an average, perhaps 10% of its food consist of poultry, quail, and other bird life. Its most characteristic cry is a high-pitched, screaming whistle, many times repeated. These notes are often duplicated by the blue jay.

The nest of sticks and twigs is built in the main fork of a tree, either evergreen or deciduous. The eggs, two to five in number, are white and spotted with brown and chocolate. A set of two eggs found in Orange County, May 9, 1899, were well advanced in incubation.

A migrating Red-shoulder was shot at East Bend, Yadkin County, February 1, 1933, that carried a band placed on it in New York State, June 11, 1932.

☆ New records support the "Range" noted above. Breeding records are from the counties of Bertie, Beaufort, New Hanover, Bladen, Cumberland, Edgecombe, Wake, Granville, Guilford and Mecklenburg. ☆

BROAD-WINGED HAWK.

Plate 15

Buteo platypterus platypterus (Vieillot). [343]

Description. Adult with upperparts brownish; breast brownish in front with transverse white spotting; belly white, barred with dull rufous; tail black with 2 to 4 broad bands of lighter. *Three outer primaries notched.* Immature birds: similar but underparts whitish, streaked with dusky, tail grayish-brown with about 6 narrow bands of dusky and tipped with whitish. Length 13.25-18.00; wing 9.85-11.40; tail 6.50-8.00; spread 33.00-36.00.

Range. Breeds from southern Canada to the Gulf Coast. Winters from southern Florida and Mexico to Peru.

Range in North Carolina. Summer resident from Nash, Wake, and Moore Counties, west.

The Broad-winged Hawk is the smallest of our *Buteos* and is the only one not present in winter. So far it has not been recorded from the eastern parts of the State.

Fig. 28. Broad-winged Hawk.

In the Raleigh neighborhood, it arrives early in April and, being a woodland bird of retiring habits, would hardly be noticed were it not for its peculiar long-drawn whistle quite unlike the screams uttered by other *Buteos.* It remains in the State at least until September, before migrating southward.

Shortly after its arrival in spring nest-building begins. This structure is placed in the crotch of a tree. Often hickory, oak, or pine is used for this purpose. The eggs, generally two or three in number, are dull white, spotted or blotched with brown or with faint grayish or lavender markings, and in size are 2.10 by 1.60 inches.

Burleigh says the Broad-wing is not as common about Asheville as formerly, due, he surmises, to its indiscriminate slaughter by mankind. He remarks: "It is always the first week in April before the earliest migrants appear in the spring,

and only rarely is one seen after the first of October, my extreme dates of occurrence being April 5 (1932) and October 22 (1930)."

☆ New spot records add New Hanover and Wayne counties. New extreme dates are Chapel Hill (March 1) and Wilmington (November 19).

Since 1951 some studies of fall migration of these birds in our mountains has been in progress. It appears that there is a definite group migration, but not as much concentrated as along the mountains north of us. The flights take advantage of winds deflected upwards and thermal currents of warmed air. More facts will have to be gathered to complete the picture.

There is also evidence of coastal flights in September of species of falcons and accipiters. ☆

AMERICAN ROUGH-LEGGED HAWK.

Plate 15

Buteo lagopus sanctijohannis (Gmelin). [347a]

DESCRIPTION. Head and neck whitish streaked with dusky; upperparts varied with white, grayish and brown; basal half of tail and rump white; underparts white streaked with dusky, varying from this to an almost entirely black plumage. Length 19.50-23.50; wing 15.75-18.00; tail 9.00-11.00. Front of tarsus is *fully feathered to the toes.* In the black phase the tail is barred with white and grayish.

RANGE. Breeds in Alaska, Canada and Labrador; winters from southern Canada to California, New Mexico, and North Carolina.

RANGE IN NORTH CAROLINA. Rare straggler.

Fig. 29. Rough-legged Hawk.

This far-northern hawk, which comes to the United States in winter, has been noted but seldom in North Carolina. It is a bird of the open fields, where it often perches on stumps or low trees. It is about the size of a Red-tailed Hawk, but in typical adult plumage the white of the rump and basal half of the tail and

the broad, black spotted band across the lower front of the body, will distinguish the species.

It is a useful hawk on the farm. More than 200 stomachs examined by competent naturalists revealed that 4% of the recently consumed food was birds; 8% insects, and 88% field rats, mice, and other rodents.

The Rough-leg was recorded by Cairns in Buncombe County as an occasional winter and spring visitor. Metcalf reported one at Blowing Rock, Watauga County, September 10, 1908; Murray and Sprunt saw three specimens in the same neighborhood in 1935, two on August 14 and one on August 16. Earle R. Greene reported one that he and W. G. Cahoon saw at Mattamuskeet Lake, November 13, 1934. He adds: "It was in the dark phase. Its flight was somewhat like that of the Bald Eagle. When it lit on the top of a small tree, it was attacked by a Marsh Hawk; then it was chased along the lake by two crows, and apparently put up no fight but flew deliberately along."

Samuel Walker has written that at least one Rough-legged Hawk lately visited the Pea Island Refuge, appearing on December 27, 1940, and last seen January 8, 1941.

☆ There are 3 new records of this hawk. Two are from Lake Mattamuskeet (December 21 and 28), and one at Wilmington (October 8). ☆

Genus **AQUILA** Brisson.

GOLDEN EAGLE.

Aquila chrysaetos canadensis (Linnaeus). [349]

Description. Glossy dark brown, head and neck paler *tawny brown*. Length of male about 32.50; female five inches longer. Spread 6.30 to 7.00 feet. Weight seven to eleven pounds. Distinguished from immature of the Bald Eagle *by the tarsus being feathered to the toes*, and also by the shorter bill (culmen 1.50-1.85).

Range. America; breeds from northern Alaska southward in mountainous regions to western Texas and central Mexico. Possibly in North Carolina and Tennessee mountains but not otherwise east of the Mississippi River.

Range in North Carolina. Scarce in the mountain region, and occasional elsewhere.

The Golden Eagle is the largest and strongest of our birds of prey. It captures grouse, rabbits, wild turkeys, geese, foxes, mammals held in traps, lambs, and rattlesnakes. It will tow a goose ashore or lift and fly off with prey approximately its own weight. It is not averse to eating carrion when the opportunity arises.

There have long been rumors that these eagles breed in our higher mountains, but we know of no eggs or eaglets having been recorded. All our records are of scattered individuals which, through the years, have appeared in different sections, and these instances have not been numerous.

The Brimleys often saw a Golden Eagle that for many years was kept in Pullen Park near Raleigh. It was said to have come from Pender County. On December 12, 1914, a freshly killed specimen was received at the State Museum which had just been killed by R. A. Cherry in Bertie County, as it was in the act of attempting to carry away a wild turkey he had just shot. One was identified by Sherman and Eli Potter early in May, 1919, in Graham County, and one

is known to have been killed at Fort Bragg in Cumberland County in 1928. In 1930, H. H. Brimley received a specimen of this rare bird that had been shot in Nash County on November 29. Murray observed one at Blowing Rock in Watauga County, August 16, 1928.

The eyrie of this eagle is a bulky structure erected on a mountain cliff or supported by the heavy branches of some gigantic tree. In either case the site selected is such that the birds may have from the nest an unobstructed view over a wide range of country.

Fig. 30. Golden Eagle.

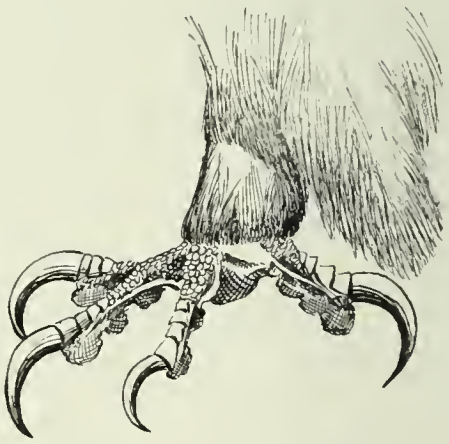


Fig. 31. Foot of Golden Eagle.

☆ New records are for immature birds seen at Pea Island (December 1 and 27, October 15, February 22 and March 1). ☆

Genus **HALIAEETUS** Savigny.

SOUTHERN BALD EAGLE.

Haliaeetus leucocephalus leucocephalus (Linnaeus). [352]

DESCRIPTION. Head, neck, and tail white in adult; plumage otherwise dusky brown; *immature birds* with whole *plumage blackish,* with whitish mottling, the white head and tail not being acquired till the bird is three years old or more. Average length of male 35.00; female 38.50; spread 76.00-88.00. Bill straw yellow in adult, black in young. Eyes yellow in adult, brown in immature.

RANGE. United States to central Mexico.

RANGE IN NORTH CAROLINA. Whole State, much more common along the coast.

The Bald Eagle is the national emblem of our country. It is not uncommon in the coastal region of our State where in the main it feeds on fish, crippled ducks, and carrion. It also kills an occasional lamb or pig and sometimes robs the Osprey of its catch. It is particularly fond of fish and follows the beaches searching for any that may have been cast up by the waves. Sometimes it catches live fish by sweeping to the water and seizing them in its talons. Since 1940, a National Law protects this bird.

Although usually seen singly, or in pairs, now and then several may be found together. On the beach, one mile from Fort Macon, Pearson, on April 2, 1898,

came upon four eagles feeding on a group of twenty-four rays left by fishermen after hauling their seine, and at Southport, November 2, 1941, saw six in the air at one time. At Cedar Island, Davis saw four on November 25, 1938, and Earle Greene reported eight in sight at one time near Stumpy Point, Dare County, on April 19, 1936.

This eagle probably breeds throughout the coastal country in suitable situations its eyries having been seen by us on Knotts Island, the mainland of Currituck County, on Roanoke Island, at Cape Hatteras, and in the forests of Onslow and Bladen Counties. Cairns, fifty years ago, said it nested in the mountains of Buncombe County. Murray reports seeing two of the birds near Blowing Rock, August 22 and 27, 1928.

The nest is a bulky structure, often six feet across and fully that high. As a rule it is placed in the top of a tall tree and often it appears to be occupied by the same pair for many years. The eggs are dull white in color, two or three in number, and about 2.90 by 2.27 in size. The young remain in the nest for at least ten weeks after hatching.

Fig. 32. Bald Eagle.

Fig. 33. Foot of Bald Eagle.

Concerning four Bald Eagles sent to H. H. Brimley at the State Museum in Raleigh, he found their weights ran from eight to more than ten pounds, and the expanse of wings varied from six feet four inches to seven feet three inches. The larger specimens were females.

☆ We add 57 records from 23 points. These indicate a wide dispersal of a small population, and that an individual or pair may stray, or migrate, through to our mountains. Along our coast there is nesting activity in December and January, and there are about 6 recurrent nesting sites left. Banding of birds in Florida has shown that there is a seasonal migration and the same disturbing decrease in population. ☆

NOTE: The Northern Bald Eagle (*H. l. alascanus*) is a subspecies breeding from Alaska to Quebec. In winter many of them move southward. The eagle population in North Carolina undoubtedly is increased by migrants, and some of our winter visitors may be referable to this subspecies. However, identification is practically impossible unless specimens are held in the hand. C. H. Townsend, who described the bird, said it is larger and the bill is "wider" than in the southern form and also the "edgings of the feathers, especially on the wing-coverts, are both lighter and broader."

Genus **CIRCUS** Lacepede.

MARSH HAWK.

Plate 14

Circus cyaneus hudsonius (Linnaeus). [331]

DESCRIPTION. Adult male: pale bluish-gray; *rump* and belly *white;* tail gray somewhat barred with blackish. Female and immature male: dark brownish above with white rump. General color beneath light brownish streaked with darker brown. Length 18.00-20.00; wing 13.50-15.50; tail 8.50-10.25; spread 40.00-45.00.

RANGE. Breeds throughout Canada and the United States, but rarely in southeastern States; south in winter to Panama and the West Indies.

RANGE IN NORTH CAROLINA. Whole State but very rare in summer.

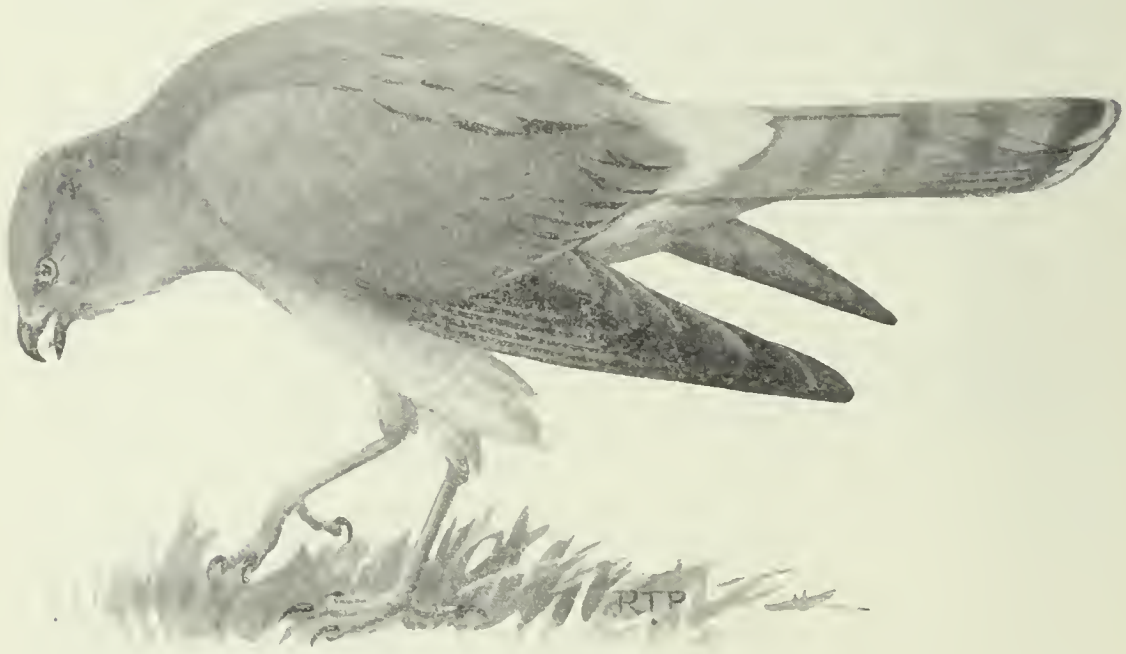


Fig. 34. Marsh Hawk.

This is the long-tailed, white-rumped "Rabbit Hawk," that sailing low, skims the meadows and marshland, rising slightly to pass over fences and bushes. Now and then it will suddenly drop to the earth as it sees some creature it desires to capture. It rests on stumps, fence posts and on the ground, but rarely is it seen soaring in the sky.

It eats mice, rats, snakes, frogs, insects, and chipmunks. It also captures birds ranging from sparrows to quail, and once in a while individuals become destructive to poultry, grouse, and young wild ducks. The reports of eight widely sepa-

rated observers showed that of 392 stomachs examined, 11 contained insects, 259 held remains of mammals, 10 had recently eaten poultry and game, and 176 had fed upon the flesh of other birds.

H. L. Stoddard found that in the Thomasville, Georgia, region these birds, while there in winter, feed extensively on the cotton rat, a mammal destructive to quail eggs. Forbush (1927) wrote "they are considered great poultry pests on the island of Martha's Vineyard," Massachusetts.

The Marsh Hawk has been found breeding in Maryland and southeastern Virginia, but thus far we know of only one nest in North Carolina. On May 20, 1936, Edwin L. Green, Jr., flushed a Marsh Hawk from its nest in a marsh bordering Pamlico Sound at King's Point, near Frisco, on Hatteras Island. It held four bluish-white eggs. Returning on June 14, Green saw a Marsh Hawk in the neighborhood, but some wind-blown bits of grass and a spider web covering four deserted eggs were all that met his disappointed gaze. No individual of this species was again seen by him that season.

The Marsh Hawk is a common winter resident in North Carolina. The earliest record we have for its appearance in autumn is Brown's report of seeing one at Beaufort, August 7, 1929. The latest date in spring is that reported by Green for the Cape Hatteras region on June 14, 1936, as given above.

☆ There are 92 new records showing greater numbers in migrating months, and lesser numbers all winter. New summer records are from Mount Olive (June 8), Pea Island (July 23) and Greensboro (September 9). Another nesting record is for Bertie County (April 19, 1891). ☆

Genus **PANDION** Savigny.

OSPREY.

Pandion haliaetus carolinensis (Gmelin). [364]

Description. Dark brown above, *neck and underparts white;* white stripes on head and sometimes dark spots on breast, especially in female; tail grayish with narrow black bars. Length 21.00-25.00; wing 17.00-21.00; spread 52.00-62.00; tail 7:00-10.00.

Range. Breeds from northwestern Alaska, Hudson Bay, and Labrador south to Mexico and the Florida Keys. Winters from the Gulf States to the West Indies and Central America.

Range in North Carolina. Summer visitor on the coast, mostly transient inland.

The Osprey, or Fish Hawk, is a large brownish hawk with white underparts, and usually is seen flying over, or near, bodies of water or perching on some tree along the shore. It feeds on fish, which it captures by plunging feet foremost generally from a height of from forty to eighty feet. Upon emerging, it pauses for a moment, shakes the water from its plumage, turns the fish in its feet so that the head points forward, and starts for its nest, or proceeds to some favorite dead tree, where it may enjoy its prey. At times a Bald Eagle gives chase and, towering above the fisherman, dives at it with great force. The Osprey soon drops its burden and the eagle, darting downward, catches the fish before it strikes the water.

Ospreys build their nests on stumps standing in the water or on trees growing either in the water or on land. Often these are lined with long, gray moss. As

the nests receive additional material every year, many in time become huge affairs, weighing one thousand or fifteen hundred pounds. This species has a tendency to colonize. For many years twenty-five or more pairs nested about the borders of Great Lake in Craven County, but when Davis, Pearson, and Royal visited the lake on June 11, 1939, the colony no longer existed. Three old, abandoned nests were found and only one Osprey was seen. On May 4, 1920, H. H. Brimley and Pearson counted forty-two nests on Orton Pond, Brunswick County, thirty-six of which were being occupied at the time. A considerable number of nests were seen here by C. S. Brimley, Davis, Pearson, and Wray on May 2, 1939. There were eggs in at least some of them on that date.

Two to four eggs are deposited, the shells being heavily marked with various shades of brown. The peculiar oily odor of the Osprey's plumage is imparted to the shell of the eggs and it is so persistent that it is readily noticeable after the eggs have laid in a museum cabinet for twenty years.

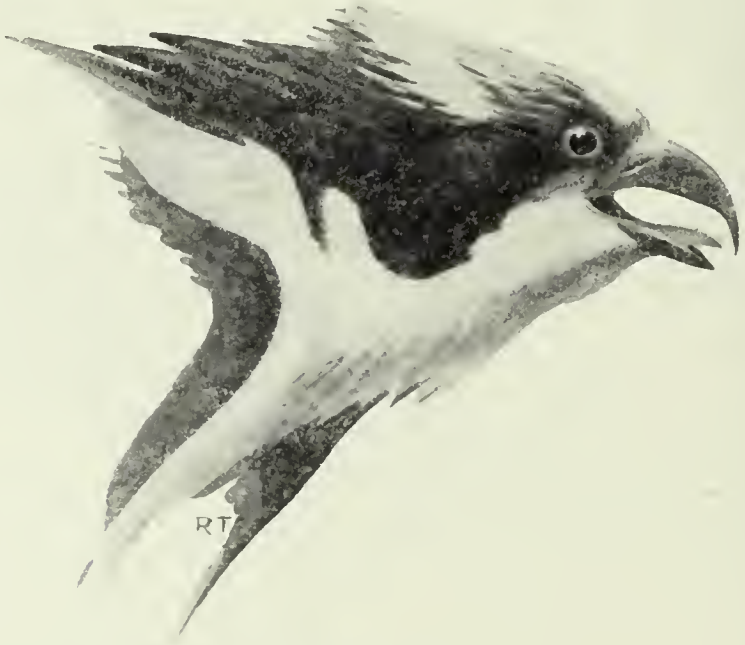


Fig. 35. Osprey.

Breeding Ospreys were particularly numerous on Roanoke Island in the summer of 1939. In North Carolina these birds are confined chiefly to the coastal region or lakes situated within a comparatively short distance of the sea. Always they live where fish are readily obtainable, although they do not object to going considerable distances to secure their prey.

Individual birds may appear briefly at almost any pond, covering as much as a few acres. Inland, Odum reports seeing specimens at Chapel Hill, July 2 and September 10, 1933; Seeman reported them at Lake Michie, Durham County in 1927. C. S. Brimley observed two Ospreys at Lake Raleigh, June 22, 1937, and again in June and July, 1938. Wayne apparently accepted a statement that at one time they bred on the Catawba River (*The Auk*, 1910, p. 80). Samworth

reported from Marines, Onslow County, that the first Osprey to arrive in 1939 was noted on March 8. Pearson saw three near the mouth of the Cape Fear River, November 2-3, 1941.

Ospreys banded in New York State have been taken on a few occasions in North Carolina. One killed at West Durham, April 4, 1930, bore on its leg a band which government records showed had been placed there at Gardiner's Island, N. Y., June 15, 1914. Another banded at Orient Point, Long Island, was shot while attempting to alight on the mast of a ship at sea seventy-three miles east of Cape Hatteras, October 9, 1933.

☆ Of the 67 new records, the larger numbers are for all the coastal region where they nest extensively each summer. Inland there are scattered records as far west as Surry, Ashe, and Henderson counties. Winter records are Orton (November 2), Wilmington (all winter), Pea Island (December 22) and Raleigh (December 22). ☆

Family **FALCONIDAE.** Falcons.

In this family of very swift hawks, the nostrils are small and circular, with a central bony tubercle; the wings are long and pointed.

Genus **FALCO** Linnaeus.

DUCK HAWK.

Plates 14 and 17

Falco peregrinus anatum Bonaparte. [356a]

Description. Adult: blackish-ash above, underparts white heavily barred and spotted with black. Immature: underparts *fuscous* spotted with brown. Length, male, average 16.00; female, average, 19.00.

Range. Breeds from Alaska and Greenland south to California, and at least to Texas and Pennsylvania. Winters from British Columbia and New Jersey to Panama.

Range in North Carolina. In winter, common for a hawk, along the coast, rarer inland. Occasionally seen in the Mountains in summer, where some probably breed. Recorded by Burleigh at Asheville, November 18, 1932.

The Duck Hawk is almost identical with the Peregrine Falcon of Europe, famous for centuries as the "noble bird" of falconry. It is easily tamed and soon learns to hunt birds for its master. Its intelligence, its streamlined build, and its amazing speed when dashing in pursuit of prey made its use the sport of kings before sporting firearms were invented. The Duck Hawk feeds almost exclusively upon birds, striking them to the earth or bearing them away in its talons. Pearson has seen them capture water birds as large as the gallinule. Sometimes they appear in cities, and perch on the cornices and window ledges of large buildings, from which they dash out and take their toll from flocks of passing pigeons. They fly with very rapid wingbeats.

Nesting sites are chosen on mountain crags or on the shelves of precipices, or cliffs facing lakes or the sea. We know of no nest having been seen in North Carolina.

In May, 1892, Pearson found a pair haunting the "pinnacle" of Pilot Mountain in Surry County. The appearance of a small cluster of rocks indicated the spot

where the birds were much accustomed to perch, but the narrow ledge prevented a close inspection to determine whether eggs or young were present. Sprunt and Murray report that of recent years they have often seen this species in summer about Blowing Rock, Watauga County. Also they record that at Grandfather Mountain on August 1, 1930, they found seven of the birds together, and thought it possible that some of them were young of the year.

Duck Hawks are fairly common in winter along the sandy outer "Banks" of Albemarle and Pamlico Sounds, and have been reported by many observers. As examples Grey and Craighill, who were at Kitty Hawk and Pea Island, September 29 to October 1, 1937, saw "about a dozen." Earle R. Greene reported one at Mattamuskeet Lake, January 9, 1935. In Onslow County, W. N. Henderson watched one stoop, strike and carry off a Lesser Scaup Duck, March 3, 1932. A specimen was received at the State Museum that had been killed on January 15, 1930, by R. M. Lassiter of Northampton County "after it had killed at least thirty of his chickens, some weighing at much as two pounds." The earliest fall record for this bird in the coastal region was furnished by R. B. Lawrence, who shot one on Currituck Sound, August 27, 1907.

☆ We add 18 records, one for Pea Island (December), two for Wilmington (December and March), and from 7 inland points. These are Raleigh (April), Greensboro (October), High Point (September), Smoky Mountain Park (December and August), Ronda (June), Highlands (April), and Craggy Pinnacle (June). ☆

EASTERN PIGEON HAWK.

Plate 14

Falco columbarius columbarius Linnaeus. [357]

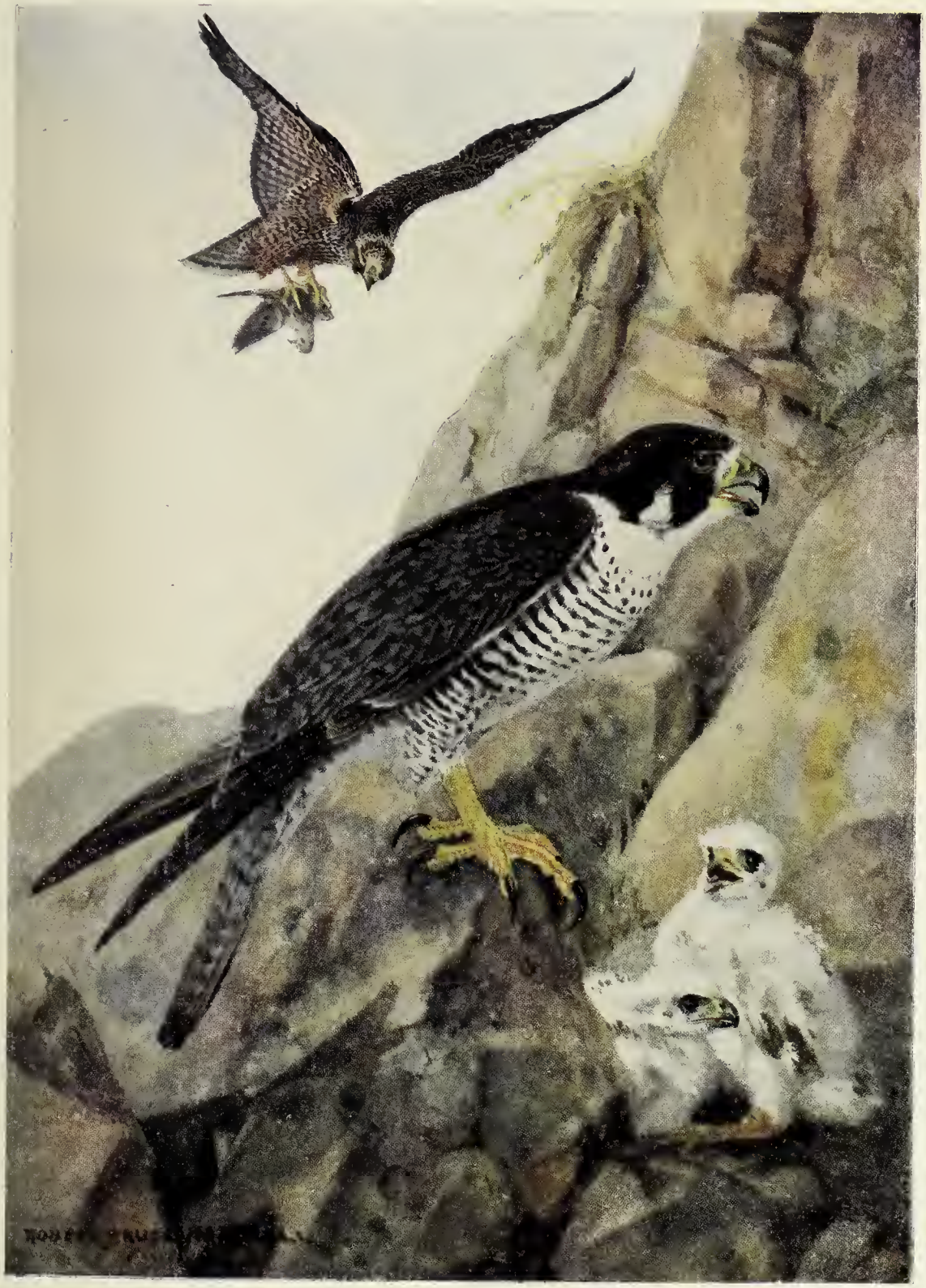
DESCRIPTION. Adult male: bluish-gray above; adult female and young: brown above. Tail barred with black above in male, with narrow light bands in female and young; underparts whitish or buffy streaked with dusky. Length 10.00-13.00; wing 7.25-8.50; tail 4.65-5.50; spread 23.00-26.00.

RANGE. Breeds from Maine and Michigan northward to tree limit. Winters from the Gulf States to Venezuela.

RANGE IN NORTH CAROLINA. Spring and autumn migrant.

The Pigeon Hawk was so named because someone thought that in flight it resembled a pigeon. In certain ways this little falcon reminds one of a Duck Hawk; it is very swift and strikes birds readily while they are in full flight. It is known to capture such slow-flying birds as meadowlarks, flickers, and blackbirds, but it has no difficulty in outflying and striking swallows and even Chimney Swifts. Although various writers have claimed that this species feeds exclusively upon birds, including sparrows, doves, and pigeons, this is not always the case. In 1933 Pearson caused the stomachs of 41 of them to be examined. They were found to contain the remains of 3 mice, 34 birds, and 119 insects.

Pigeon Hawks pass through North Carolina when going southward during the late summer and fall and, of course, again in spring when northward bound. The majority of our records have been made during the autumn movement.



DUCK HAWK. *Male and Female.*

Cairns shot a female in Buncombe County on October 19, 1894. The Brimleys list specimens at Raleigh, October 1, 1886; April 21 and 23, 1888; April 19, 1902; September 2, 1910; October 4, 1914; and March 27, 1927. A dead specimen was sent to H. H. Brimley from Montgomery County, September 23, 1936. One was killed by Robert Hall at White Lake, Bladen County, November 1, 1920. Among other records are: Greene, Hyde County, December 25, 1934; Craighill, Nash County, November 23, 1935; O. B. Taylor, Cape Hatteras, November 25, 1937; Grey and Craighill, Dare County, September 29 to October 1, 1937; Walker, Pea Island, in the months of May, September, and October, 1938, 1939, and 1940; Biggs, Beaufort County, November 27, 1939.

☆ There are 21 records, 12 coastal and 9 inland. The former are Pea Island (December), Nags Head (September), Wilmington (September, November, and December). Inland records are for Rocky Mount (December), Mount Olive (September and December), Chapel Hill (December), Winston-Salem (April), Asheville (December), Blowing Rock (August), and Pisgah Forest (September). ☆

EASTERN SPARROW HAWK.

Plate 14

Falco sparverius sparverius Linnaeus. [360]

DESCRIPTION. Male: tawny; wings *bluish* and black; tail chestnut with a broad black subterminal bar; female with back and wing-coverts *rusty* barred with black; tail rusty with black crossbars; underparts white or tawny, spotted or streaked with blackish. Length 8.75-12.00; wing 6.50-8.00; tail 4.25-5.50; spread 21.00-23.00.

RANGE. Yukon to Newfoundland, south to California and southern Florida. Winters southern Canada to Panama.

RANGE IN NORTH CAROLINA. Whole State, breeding from Raleigh and Fayetteville westward, possibly only a winter visitor farther east.

Sparrow Hawks are the smallest and the most handsome of all the American members of the hawk family. They may be seen flying about the fields, or perched on a tree, fence, stake, or telephone pole beside the road, or even on a church steeple in town. Their common cry is a vigorous *killy, killy, killy,* oftimes repeated. The beautifully spotted eggs are laid in hollows of trees or bird boxes, without the use of any nest lining. Pearson found a nest in the natural hollow of an oak tree within fifteen feet of a railroad track in Greensboro, May 10, 1902, and another containing three eggs in a deserted flicker's hole at Chapel Hill in May, 1898.

C. S. Brimley saw a pair using the hollow of a dead tree in Haywood County, May 31, 1913, and reported that some years ago Sparrow Hawks nested in a church steeple in Raleigh; and according to L. H. Snyder, another pair of Raleigh birds occupied a bird box. Seeman said some years ago a pair nested under the eaves of a building in Durham. M. E. Stimson also reports them using bird boxes at Statesville.

Although feeding occasionally on small birds, and frequently on mice or lizards, this species confines its attention largely to insects, especially the easily

procured grasshoppers. In 398 stomachs, carefully examined, 269 contained insects, 149 mice, and 69 birds.

In a letter Murray writes: "On August 7, 1933, I watched for an hour a family of Sparrow Hawks in a large dead chestnut tree on Rich Mountain, near Blowing Rock. There were four grown young which were just learning to fly. The two adults were catching grasshoppers and apparently taking them to the young." Craighill wrote from Rocky Mount, June 30, 1939: "We found in our Sparrow Hawk's nest a small snake, two lizards, and the remains of a small bird."

Fig. 36. Sparrow Hawk.

☆ This hawk shows up as relatively abundant throughout the State. New nesting records from Rocky Mount, Wilmington (June 14, 1953), Bertie, Cumberland and Hoke counties indicate general nesting in the east. ☆

Order **GALLIFORMES**. Gallinaceous Birds.

To this order belong the so-called scratching birds, including grouse, turkeys, pheasants, quails, peafowl, and guinea fowl. Also here is the barnyard hen with its many varieties, all of which are supposed to have been developed by artificial selection from the Red Junglefowl of Asia. All the members of this order are land birds and are highly esteemed as human food. Some are polygamous, as

for example, domestic chickens and turkeys; others are monogamous, as grouse and quail. The males of polygamous species have much more brilliant plumage than have the females. All of the group possess crops for the temporary storing of food, and gizzards where it is subsequently ground. All seek the majority of their food on the ground, where also many of them roost.

They are the natural prey of various flesh-eating enemies, including rats, foxes, coyotes, crows, and some species of hawks and owls. All lay a large number of eggs. The young are covered with down when hatched and are so precocious they are able to follow the mother almost as soon as they emerge from the shell. To this group belong many highly popular game birds, as well as many valuable domestic species.

In this order are some sixty species of American quail, most of which are tropical in their distribution, only seven being found in the United States. The well-known Bobwhite is the only one in North Carolina. Twenty-one species of grouse and ptarmigan inhabit North America. The ruffed grouse is the only member of this group in our State. Turkeys are confined to North America. There are several races, one of which still roams the forests of the more unsettled parts of North Carolina.

Family **TETRAONIDAE.** Grouse.

These ground-loving birds are mostly of medium size with the tarsus at least partly feathered as well as the whole head.

Genus **BONASA** Stephens.

CANADA RUFFED GROUSE.

Bonasa umbellus togata (Linnaeus). [300a]

Description. Head crested, sides of neck with a ruff of soft dark feathers; upperparts varied with black, brown, and gray; tail dusky with several narrow bands of black, a broad subterminal band of black, and a terminal one of grayish; underparts whitish or buffy marked with broad bars of brown. Female: smaller than male with ruff on neck smaller or wanting. Length 15.50-19.00; wing 7.00-7.50; tail 5.50-7.00.

Range. Wooded regions of eastern United States, south in the mountains (at least formerly) to South Carolina and Georgia.

Range in North Carolina. Resident in the mountain region.

The Canada Ruffed Grouse, often incorrectly called "Ruffled Grouse," is the "Partridge" of New York and New England and the "Mountain Pheasant" of the highlands of the South Atlantic States. It is a bird of the forest, and when the woodlands are replaced by cultivated fields and pastures, its place is taken by the bobwhite, the meadowlark, and the vesper sparrow. Wherever found, it is a popular game bird, for its body not only furnishes a delectable dish for the table but in life its rapidity of flight and its uncanny ability to dodge behind cover when flushed, gives the sportsman unusual opportunities to practice quick and accurate marksmanship.

There appears to be no record of the Canada Ruffed Grouse ever inhabiting the flat country of eastern Carolina, but claims have been made that its range at

one time extended through much of the piedmont territory. At the request of the authors of this volume, the Division of Game and Inland Fisheries of the North Carolina Department of Conservation and Development made a special investigation to determine over just what area of the State these birds are found. Upon the completion of this study, the Division reported on March 2, 1939, that the Canada Ruffed Grouse today is inhabiting just one-fourth of the counties in North Carolina. The boundary of the region occupied runs along the South Carolina border from Rutherford County westward to, and including Cherokee, then along the Tennessee and Virginia lines to Stokes, then southwestwardly through Surry, Wilkes, Caldwell, and Burke to the place of beginning in Rutherford.

This bird breeds in May and June, the eight to fourteen buff-colored eggs being laid in a nest hidden on the ground. Sometimes on leaving the nest, the female will cover the eggs with fallen leaves. She has complete charge of rearing the young, and in their travels in search of food, she usually follows the brood which spreads out fanlike in front of her.

Especially in the breeding season the males make a practice of drumming by rapidly beating their wings. This far-carrying rumbling noise is produced frequently, sometimes even at night, and each male has a favorite log, stump, or other slight elevation, to which it repairs to give its musical performance. The grouse feeds upon seeds and many kinds of berries and also consumes quantities of insects. At times it leaves the cover of the woods and makes short excursions into fields in quest of grasshoppers or crickets. It is fond of acorns, beechnuts, and chestnuts, and in winter it may now and then be seen among the branches of apple trees where it has alighted to feed on the buds. When snow in the woods is deep and soft, the bird in the evening sometimes plunges into the snow from aloft and here securely hidden from view passes the night.

☆ We add 24 records which indicate no appreciable change in status. The Wildlife Resources Commission has been trying to improve this bird's habitat and the population seems to be stable. ☆

Family **PERDICIDAE**. Partridges and Quails.

Very similar to the grouse, but averaging smaller, and with naked tarsi, and of more southern distribution. Most of the American species are found in the southwest.

Genus **COLINUS** Goldfuss.

EASTERN BOBWHITE, "QUAIL," "PARTRIDGE,"

Plate 18

Colinus virginianus virginianus (Linnaeus). [289]

DESCRIPTION. Upperparts mottled grayish, tinged with rusty and waved with dusky and whitish; underparts whitish varied with black and rusty. Males with stripe over eye and broad patch covering chin, throat and malar region white; rest of head black; females with head buff and brown instead of black and white; chest mainly light cinnamon. Length 9.50-10.75; wing 4.25-4.75.

BOBWHITE. *Male and Female.*

Range. South Dakota to New England and south to upper Texas and northern Florida.
Range in North Carolina. Resident in every county of the State.

The Bobwhite is the best-known, and the most popular, game bird in North Carolina. Most Carolinians know it as "Partridge," although northern hunters have introduced the word "Quail" into many sections. From the latter part of the summer through autumn and winter, bobwhites associate in coveys, the basis of each being the brood of the year. The survivors of a group that has been reduced by shooting, may unite with another covey. When flushed, the flock rises with an explosive *whirr,* and after flying for perhaps two or three hundred yards, drops again to cover. If not greatly alarmed the "scatter call" will begin to sound in a few minutes, and the covey is soon reunited. The birds then resume their leisurely journey in quest of food. At night they roost on the ground, often in a weed field, where they sit close together with heads pointed outward in all directions.

In spring the whistle *bob-white,* or *wh-bob-white* of the male is heard ringing over the fields and through open wooded regions. It is believed that this call, when given in late summer, comes from a lonely male still searching for a mate.

This species is of great economic value to the farmer because of the potato beetles, boll weevils, and other insect life that it consumes. During the colder months, the food consists largely of berries and especially weed seeds and peas, and scattered grains left in the cornfields. Of recent years lespedeza has been grown extensively by those desiring to provide an additional attractive and wholesome food for these birds. Quail-shooting attracts thousands of men every year who enjoy field sports with dog and gun.

In efforts to restock covers where overshooting has occurred, many quail have been imported from northern Mexico. These are of the slightly smaller subspecies known as the Texas Bobwhite (*C. v. texanus,* Lawrence). It is questionable how much the population has been increased by this means, as there have been remarkably few reports of the imported birds having been seen after their liberation. Probably some, at least, have mated with the native stock.

The bobwhite's nest is made on the ground where it is concealed in a bunch of grass or weeds. Ten to twenty white eggs are laid, the parents taking turns at incubating them, which is a task that requires twenty-three days. When hatched, the young are covered with down, and almost as soon as this has dried the little quail is ready to begin its travels through life.

☆ These birds seem to generally maintain their numbers and distribution. In suitable habitat they are found in the mountains to at least 5000 feet elevation, and grouse are found in the same areas. Introduction of the "Mexican Quail" has probably meant interbreeding in many places.

NOTE: The State Wildlife Resources Commission is now making extensive plantings of the Japanese Quail *(Coturnix coturnix).* There is some indication that such an introduction might provide a new game bird.

This Coturnix is native to the Northern portions of the eastern hemisphere and has been widely introduced. Planting success in Europe has led to the common name of European Quail.

The bird is distinctly smaller than our native Bobwhite. The length is about 7 inches as compared to 9 to 10 inches, and the weight is 4 ounces as compared to 6 to 7 ounces. There is some similarity in general coloration but the smaller bird does not have the distinctive head marking of the Bobwhite.

The Coturnix seeks a habitat similar to the Bobwhite and takes the same general food. It is notably more migratory in habit. In stance, size and movement this bird suggests our Meadowlark, but is easily distinguished by the color and markings of the latter. ☆

Family **PHASIANIDAE.** Pheasants.

Rather large gallinaceous birds with head fully feathered and the tail longer than the wings.

Genus **PHASIANUS** Linnaeus.

RING-NECKED PHEASANT.

Phasianus colchicus Gmelin. [309.1]

DESCRIPTION. Male: coppery chestnut with bright purple or bronze reflections; neck metallic blue; tail long and pointed with dark crossbars; the female is much duller, brownish mottled and varied with dusky; underparts plain; tail barred. Male: length 30.00; wing 9.50-10.50; tail 17.50-20.00. Female: length 20.00-24.00; wing 8:50; tail 11.00-12.00.

RANGE. Breeds as a naturalized species in many northern States.

RANGE IN NORTH CAROLINA. Introduced into different sections, mostly in the upper piedmont, but is rare in a wild state.

No upland-game bird in North Carolina is adorned with such gorgeously colored plumage as the male Ring-necked Pheasant. It is not a native species, with us, but many introductions of the birds have been made through the years. As a matter of fact, the homelands of the pheasants are in Asia. Some were introduced in England probably from Asia Minor during, or before, the Roman conquest.

Two or three varieties of pheasants, by interbreeding, in time produced what we are accustomed to call the English Ring-necks. These are the birds that have been liberated on scores of upland-game preserves in North Carolina. However, they have never secured a firm foothold here nor in any other eastern State this far south. The only breeding pheasants of which we have heard of late is a small group on Hatteras Island, a pair of which were noted at the Cape by H. H. Brimley, Pearson, and Walker, June 20, 1939.

Like all terrestrial birds of this class, this handsome foreigner and its mate feed much upon insects, seeds, fruits, and small nuts. It roosts on the ground and the nest is concealed in the grass or among low shrubs. Sometimes we hear complaints that it is injurious to grain crops and that it destroys the eggs of the bobwhite, but the presence of a creature as glamorously beautiful as the pheasant is likely to start gossip in any neighborhood.

☆ The 4 added records are of little significance, in that many plantings of this exotic bird have failed. ☆

Family **MELEAGRIDIDAE.** Turkeys.

A small family of large gallinaceous birds with unfeathered heads, which are entirely confined to Central and North America.

Genus **MELEAGRIS** Linnaeus.

EASTERN TURKEY: WILD TURKEY.

Meleagris gallopavo silvestris Vieillot. [310a]

Description. Glossy coppery black, the wing quills and secondaries slaty, barred with white; tail gray, barred with black and tipped with deep rusty; the upper tail-coverts tipped with dark chestnut. Length 48.00-50.00; wing 21.00; tail 18.50; weight 12-25 pounds.

Range. Resident from Pennsylvania and Missouri south to Florida and central Texas.

Range in North Carolina. Resident throughout much of the State.

This is the largest game bird found in the United States. Although it has been extirpated in much of its former range, it still is fairly common throughout much of North Carolina where large tracts of swamp and woodland remain. Even in Wake County, in the very center of the State, it ranges the river bottoms in small numbers.

The males, and in some cases the females, are adorned with a long beard suspended from the upper breast. The nest is built on the ground in woods or old fields, usually in April, and is well concealed. The eggs, which range from eight to eighteen in number, are light buff, thickly speckled with brown, about 2.35 x 1.79. Each hen slips away from the wandering harem and lays her eggs in secret. Experienced woodsmen claim that the sultan of the flock will break the eggs in any nest he can find. This may or may not be true, but it is a matter of common knowledge that it is the hen who incubates the eggs and cares for the young.

The Wild Turkey differs from the domesticated bird chiefly in being longer legged, more brightly colored, and in having the tail-coverts and the long tail-feathers tipped with rusty or deep brown instead of with white. The domesticated bird came from a slightly different race of turkeys imported into Europe from Mexico, early in the Sixteenth Century, where it was already domesticated by the Indians.

Wild Turkeys in a natural state are confined to North America. In addition to the Eastern Turkey, the range of which is given above, there is also the Florida Turkey, the Rio Grande Turkey of Texas and northeastern Mexico, and Merriam's Turkey found from Colorado southward into northern Mexico. The Wild Turkey is very highly regarded as a game bird throughout its range, although the flesh of the Rio Grande Turkey (*M. g. intermedia,* Sennett) at times becomes so impregnated with the flavor of a wild pepper as to render it temporarily unacceptable as food for man.

☆ This large bird has continued to decrease with added hunting pressures. Our 25 new records indicate a breeding potential that is left in suitable habitats. Our Commission continues efforts to provide

refuges with optimum habitat. It is probable that we have few, if any, of the pure wild strain. ☆

Order **GRUIFORMES.** Cranes, Rails, and Allies.

In North America three families of birds are classified as belonging to this order. The first consists of *Gruidae* (cranes). A member of this family, known as the Florida subspecies of the Sandhill Crane, is found in Florida, south Georgia, and southern Mississippi. An early explorer reported them common in the Cape Fear River country. At various times rumors have reached us of so-called "Savannah Cranes" being seen in Brunswick County, North Carolina, but special search throughout much of the region by H. H. Brimley and Pearson during two early summer trips failed to reveal any evidence of the presence of cranes.

☆ Note: For new occurrences see Addenda P. 419. ☆

The second family, *Aramidae,* is represented by the Limpkin, a fairly large, brownish bird, of swamps and marshlands, with many fine whitish stripes on its plumage. It lives in Florida and is reported in the Okefenokee Swamp of south Georgia. There are a few records of it having wandered to South Carolina, but to date none has been recorded in North Carolina.

The third family belonging to this order is the *Rallidae* (rails, gallinules, and coots). These are distinctly marshland birds and with the exception of the coot, which has certain duck-like habits, none of them inhabit open waters nor are they inclined to assemble in flocks. The head, in all cases, is feathered and the hind toe is well-developed and nearly on a level with the other three. Seven genera of this family, including ten forms, are found in North Carolina.

Family **RALLIDAE.** Rails, Gallinules, and Coots.

Genus **RALLUS** Linnaeus.

This genus includes the larger, slender-billed rails and is represented in this State by three species, all of which live in marshes. They have skulking habits, and usually it is difficult to get them to take wing. Their narrow compressed bodies enable them to pass with ease through the tangles of grass, rushes, and cattails amid which they live. When walking they may stand fairly upright, but when running they lean well forward, their breasts almost level with the ground. The downy young are glossy black and can run about almost as soon as hatched.

KING RAIL.

Plate 19

Rallus elegans elegans Audubon. [208]

DESCRIPTION. Reddish-brown, heavily streaked with black; throat and stripe over eye white; wing-coverts *rufous;* breast *reddish-brown;* belly and sides barred with white and dark brown. Length 15.00-18.00; bill about 2.50; wing 6.00-6.75; spread 20.00-22.00.

RANGE. Breeds from Minnesota and southern Ontario to Texas and Florida; winters from New Jersey southward.

RANGE IN NORTH CAROLINA. Fresh-water marshes throughout the State in summer, and wintering to some extent.

This is the common fresh-water "Marsh Hen" of our State. Like all rails, it is seldom seen because of its great reluctance to appear in the open, but its loud cackling *brip, brip, brip,* and its grunting *ump, ump, ump,* are often heard. On rare occasions it wanders away from the water on short journeys into a neighboring dry marsh or hayfield.

Its nest of grasses, rush-leaves, or other vegetation, is built in a marsh and is usually screened from view. The mass of material collected for this purpose may be a foot in height. In time of freshets or during very wet seasons, many of these are inundated. The eggs are generally eight to twelve in number. They are buffy-white, decorated with numerous brown spots. The breeding season extends from May to July.

In the Raleigh neighborhood, the King Rail appears to be present chiefly from late March to November, although specimens are occasionally taken in winter. This species is a legal game bird but few are shot, due chiefly to the difficulty of flushing them from their haunts among the cattails, sedges, and bulrushes. Occasionally it inhabits brackish marshes.

☆ Listed as a "fresh-water bird" new records from Topsail (October 14) and Masonboro (April 26) Sounds are of note. New nesting records are from the counties of Bertie, Currituck, Dare, Wake, Durham, Mecklenburg and Cleveland. ☆

NORTHERN CLAPPER RAIL.

Plate 19

Rallus longirostris crepitans Gmelin. [211]

Description. Grayish-brown above with indistinct darker stripes on back; breast pale cinnamon. Length 13.50-15.50; wing 5.50-6.25.

Range. Marshes of the Atlantic Coast from Connecticut to North Carolina.

Range in North Carolina. Salt-water marshes at all seasons.

Clapper Rails are abundant residents along the coast where their loud rattling calls constitute, in many places, the most characteristic bird notes of the marshes. These "Marsh Hens" are game birds that in some sections are shot from boats punted through the marshes at high tides. In various regions they are particularly numerous in summer. Such a place Pearson found on May 13, 1898.

It was a marshy island situated in Pamlico Sound, near New Inlet. Here and there were found clumps of rushes, in nearly every one of which a rail's nest had been constructed. These were made entirely of marsh grass and were built from six to eight inches above the wet sod. The fragments of grass used varied from four to six inches in length, shorter pieces being employed for the top layers. The nests measured about eight inches across the top. Both freshly laid and incubated eggs were found on this date. Several of the nests were examined; one of them held eight, and another ten eggs. Usually they were not screened from view by any arching of the grass or rushes. Along the banks of the tide creeks the marsh grass was often two feet or more in height. Here were many covered runways of the birds, some of them several yards in length.

☆ New records carry the range to Southport (June). Inland records are for Raleigh (April 13 and 21). Nesting records are from Dare, Carteret, Brunswick and Bertie counties, the latter not being on salt water. ☆

Fig. 37. Clapper Rail.

WAYNE'S CLAPPER RAIL.

Rallus longirostris waynei Brewster. [211c]

DESCRIPTION. Similar to Northern Clapper Rail but darker.

RANGE. From New Smyrna, Florida, along coast to southeastern North Carolina.

RANGE IN NORTH CAROLINA. At present recorded only from Brunswick County.

The clapper rails of the Atlantic Coast have been divided into four subspecies, these groups being separated from one another because of slight differences in plumage. Each occupies a particular geographical range. One of these subspecies is Wayne's Clapper Rail.

Bearing on the frequently debated subject as to whether Wayne's Clapper Rail is found in North Carolina, Wetmore recently reported:

"Two adult females were taken near Southport, May 17 and 18, 1939. It is currently recognized that the coast of North Carolina marks the transition point between the Northern

Clapper Rail, *Rallus l. crepitans,* and the bird of the southeastern coast, *waynei.* Oberholser records specimens from as far south as Beaufort as *crepitans,* remarking that they are intermediate. The two from Southport mark the entrance into the State of the more southern race as they are definitely darker than northern specimens."

VIRGINIA RAIL.

Plate 19

Rallus limicola limicola Vieillot. [212]

DESCRIPTION. Olive-brown, broadly striped with blackish; wing-coverts deep dusty; breast deep cinnamon; flanks dusky, barred with white. Length 8.00-10.50; wing 4.00-4.25.

RANGE. Breeds from southern Canada to Lower California and Kentucky, and along the Atlantic Coast of the United States to North Carolina. Winters from Colorado and North Carolina to Guatemala.

RANGE IN NORTH CAROLINA. Transient, winter visitor and scarce summer resident.

This bird is much like a King Rail, but is a great deal smaller. The habitats of the two are similar, both preferring fresh-water marshes. Our knowledge of its distribution in the State is limited. For a long time it was not supposed to breed south of New Jersey. This fact added greatly to the interest of the discovery of a nest with four fresh eggs on Gull Shoal Island in Pamlico Sound, Dare County, by Pearson on May 20, 1898. The top of the nest was just twelve inches above the water in which the rushes grew that supported it. It measured six inches across the top.

Thirty-eight years were to pass before another nest of the Virginia Rail was noted in North Carolina. On May 21, 1936, E. L. Green, Jr., found three nests in "dense clumps of black rush" in a partially submerged flat within the boundary of the Cape Hatteras State Park. One of the nests held eight eggs, the other two contained six each. The flat became dry and snakes or other enemies made away with the eggs. Adult rails continued to be seen in the neighborhood.

Other records of the Virginia Rail's appearance in the State are as follows: One was picked up dead by H. H. Brimley and Pearson on Bogue Bank, near Morehead City, March 3, 1898; Bishop took a moulting female on Pea Island, February 9, 1905; H. H. Brimley saw one at close range at Lake Ellis, May 16, 1906; Earle R. Greene reported one at Mattamuskeet Lake, July 2, 1935, and the same year Odum published a list of the birds of Chapel Hill, in which he said of the Virginia Rail: "Winter resident; similar to the King Rail in habits. Taken February 28 (Taylor)." Miss Grace Moore picked one up dead at Henderson, September 30, 1937, and brought it to the State Museum. Samworth watched two feeding in a shallow ditch on his place near Marines, Onslow County, February 24, 1939. Walker observed the species in Dare County, April 17 and June 13, 1939, and December 27, 1940.

☆ New records are 4 at Wilmington (December 27), 2 at Beaufort (September), 2 at Greensboro (May and December), 1 at North Wilkesboro (August 2), and 2 at Mount Olive (April and May). ☆

Genus **PORZANA** Vieillot.

SORA.

Plate 19

Porzana carolina Linnaeus. [214]

DESCRIPTION. Olive-brown streaked with black; breast slate-gray; belly barred; adult with face and middle line of throat black. Immature has no black on face or throat. Length 7.87-9.25; wing 3.87-4.35; tail 1.75-2.12; spread 13.00-14.00.

RANGE. Breeds from southern Canada to Lower California and Pennsylvania; winters from Florida to Venezuela.

RANGE IN NORTH CAROLINA. Whole State during the periods of spring and autumn migration.

The Sora is the well-known "Rail Bird" sought by hunters in marshes when the tide is high and it is forced to take flight upon the approach of the gunner's flat-bottomed boat. Formerly, when Soras came in early autumn to the rice-fields and to the fresh and brackish marshes of our coast country, they often were taken at night by means of a torch and a stick. They are highly esteemed for food and the bodies of great numbers of them formerly were displayed in the Wilmington markets. Soras give the impression of being poor fliers. When one rises before you, it proceeds slowly and awkwardly, as if it were a young or a badly wounded bird. Yet in migration, when extensive flying becomes a matter of serious business, it unhesitatingly launches on long trips. Many are believed to cross the Gulf of Mexico, and every year some appear in Bermuda.

Fig. 38. Sora.

This rail is not entirely confined to the coastal region. It may be found in almost any fresh-water marsh or wet meadow during the migration periods. At Raleigh, for many years, C. S. Brimley kept a record of the dates when the Sora appeared. His notes show that his earliest date in the autumn flight was August 21; and the latest time it has been seen before leaving for the winter was October 30. With the coming of spring, the earliest a bird was observed was on April 8, and the latest spring record was made on May 13. Pearson recorded one at Greensboro, August 19 (1909); and Cairns found it in Buncombe County, September 1 to 6, and April 30 to May 6. Empie declared it to be common in Onslow County "in December, 1932." Odum (1935), for Chapel Hill, said of the Sora: "Transient, September 8-December 23, no positive spring records."

Earle R. Greene stated that at Mattamuskeet Lake on April 8, 1935, a Sora was seen to flutter up fifteen feet into a bush, "where it remained several minutes."

☆ We add 12 records from 10 points as follows: Raleigh (May and August), Greensboro (May and September), Rocky Mount (September), Lake Mattamuskeet (December), Beaufort (September), Winston-Salem (September), Brunswick County (September), and Mt. Mitchell (April). ☆

Genus **COTURNICOPS** Gray.

YELLOW RAIL.

Plate 19

Coturnicops noveboracensis Gmelin. [215]

Description. Head, neck, and breast ochraceous; flanks dusky, barred with whitish, under wing-coverts axillars and secondaries white; upperparts ochraceous broadly striped with black and narrowly banded with white. Length 6.00-7.75; wing 3.00-3.50.

Range. In summer throughout southern Canada southward to Lower California and possibly North Carolina. Winters in eastern United States from North Carolina southward.

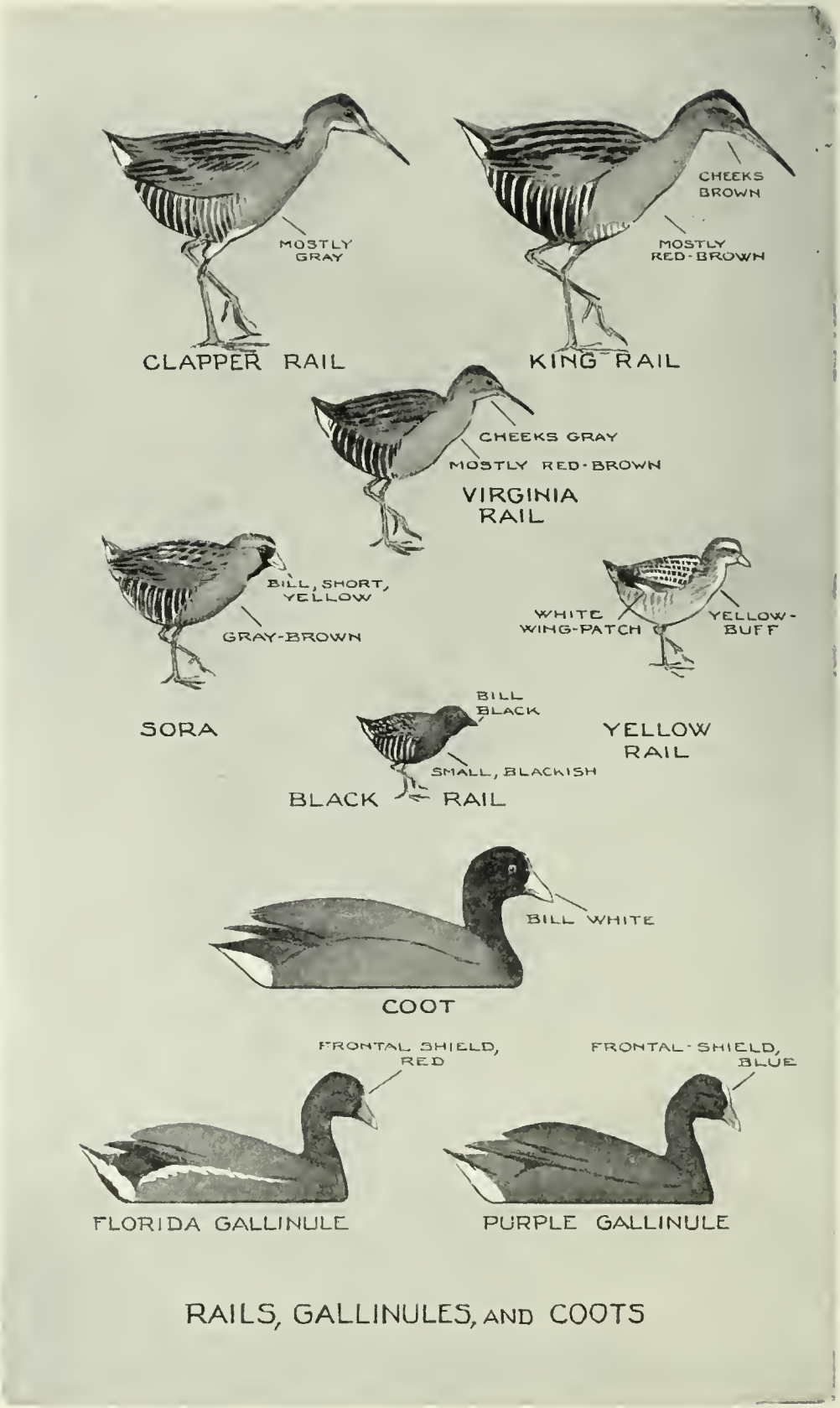
Range in North Carolina. Probably the whole State, occurring mainly during the migrations; apparently winters along the coast.

This little light-brownish, short-billed rail is one of the most elusive birds in North America. It is almost impossible to flush one from its haunts along the edges of a marsh, in a meadow, or grainfield. Like a mouse, it darts away, running low and keeping out of sight with amazing cleverness. During the autumn and winter, one is now and then caught by a hunting dog, otherwise its presence in the country it inhabits might pass wholly unnoticed. Its nest is so skillfully hidden that with the exception of a few found in North Dakota and one in California, it has never been seen, unless such further discoveries have been made recently.

The Yellow Rail appears to be a rare bird in North Carolina. Coues saw one in Carteret County, April 12, 1870. H. H. Brimley found the bodies of two exhibited at the New Bern Fair in February, 1892; Cairns took a male at Weaverville, Buncombe County, October 19, 1894. One was sent to Pearson by M. W. Haynes, of Tarboro, who stated that he picked it up the morning of September 23, 1908. It evidently had been killed by flying against a telephone wire. Bishop secured two adult males on Pea Island, Dare County in 1908—one on December 20, the other six days later. A living specimen was brought to Pearson at Greensboro, October 4, 1910, by a colored man, who said he had just caught it in a barn. Two were found near Holly Ridge, Onslow County, January 23 and 24, 1922, by T. G. Empie, who also took another on January 2, 1926. Craighill and Walker saw one on Pea Island, September 9, 1939.

These records seem to indicate that the species is not only a migrant, but in some cases may even remain throughout the winter in the coastal region of the State.

☆ To the above may be added a record for 2 seen at the North River bridge near Beaufort (September 20), and one taken at Raleigh (October 1). ☆



RAILS, GALLINULES, AND COOTS

Courtesy of Roger Tory Peterson

Genus **LATERALLUS** Gray.

BLACK RAIL.

Plate 19

Laterallus jamaicensis Coale. [216]

DESCRIPTION. Head, neck, and underparts plain dark plumbeous or slate color, darker on top of head; belly and under tail-coverts brownish-black barred with white; hind neck and back dark chestnut brown speckled with white. Length 5.00-6.00; wing 2.50-3.20; spread 10.00.

RANGE. Breeds from Massachusetts and Kansas south to Florida. Winters from Gulf States to Central America.

RANGE IN NORTH CAROLINA. Probably whole State in summer in suitable situations.

The Black Rail, the smallest member of the rail family in the United States, is so secretive in its habits that its rarity or abundance in a region is difficult to determine. It inhabits low meadowlands or grainfields rather than open wet-marshes so beloved by most rails. Probably it is a regular summer resident throughout most of the State. When alarmed, it prefers to seek safety by running, and on such occasions may at times be caught by an active man. When forced to take wing, it flies weakly and awkwardly like a young bird and soon drops again to cover.

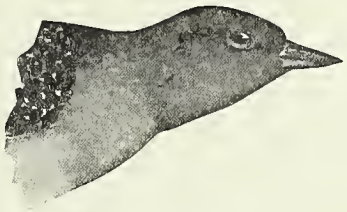


Fig. 39. Black Rail.

In Wake County, along the course of Walnut Creek, were formerly numerous areas of meadowland, some of which were annually cut for hay. Here the Brimleys, during the years 1890 to 1902, secured eight nests with eggs from the Negro mowers. Another was found by C. S. Brimley after a mowing machine had passed over it. These nests were discovered at dates varying from May 27 to July 12. Fresh eggs were seen as late as June 28 and others well advanced in incubation were found as early as June 8.

Other North Carolina records are as follows: Near Jamestown, Guilford County, an adult and two black downy young were captured alive by a farmer in June, 1893, and brought to Pearson at Guilford College. So far as we can learn, these were the first young to be taken in the United States. At Lake Ellis a Black Rail was seen early in October, 1909, and another was found at Brown's Inlet, Onslow County, August 4, 1924, by H. H. Brimley. McLaughlin stated many years ago that he found them breeding at Statesville, but left no record of the date. E. L. Green, Jr., stated that in January, 1938, several small birds were flushed at Cape Hatteras which were tentatively identified as this species.

☆ A sight record for Dare County (April 9), Greensboro (May 5), and a nesting record for Buncombe County are the additions. ☆

Genus **PORPHYRULA** Blyth.

PURPLE GALLINULE.

Plate 19

Porphyrula martinica Linnaeus. [218]

DESCRIPTION. Adult: bill carmine tipped with pale greenish; forehead bare with a bluish plate; legs yellow; head, neck, and underparts rich dark purplish; back olive-green; wings light greenish-blue, under tail-coverts white. Immature showing much brownish, underparts mottled with white; bill paler than in adult. Length about 13.00; wing 7.00; spread 22.00-23.00.

RANGE. Breeds from South Carolina south to Ecuador; winters from the Gulf States southward.

RANGE IN NORTH CAROLINA. Known to appear as a summer straggler.

This beautiful water bird occasionally wanders to North Carolina, but we have no knowledge that it ever breeds in the State.

Pearson, who has seen much of this species in more southern regions, says it is not as distinctly a marsh-loving bird as is the King Rail, but prefers areas of rushes and water lilies among which there are small spaces of open water. The birds are often seen swimming about, or walking over the lily pads. Where the ponds or lakes they inhabit are bordered by bushes and trees, he has seen them climb upward from limb to limb to a height of forty feet, balancing with waving wings and often clucking as they progress. When wounded, they readily dive and swim beneath the surface.

The nest is much like that of a rail, and is built among rushes or heavy marsh grass, often a foot or more above the water. At times they are noisy and call much to each other, but not to the extent indulged in by the King and Clapper Rails.

To date we have seven records of their occurrence in North Carolina. H. H. Brimley secured one at Raleigh, June 6, 1887; there is a specimen in the State Museum taken in Craven County in early June, 1900. In Iredell County, one was captured, May 6, 1922, and kept for a time by Wallace Hoffman, of Statesville; at Beaufort one was found dead on a roof by S. F. Hildebrand, May 13, 1917. In New Hanover County, a newly killed specimen was examined by J. J. Blair. In *The Auk*, 1920, p. 130, H. F. Stone reported one in Currituck County, November 12, 1919; one was seen at close range by Samworth near New River Inlet, June 19, 1938; and Bragaw has frequently seen some near his home on the Orton Plantation, Brunswick County, since May, 1939.

☆ New records are from the counties of Brunswick, Craven, Halifax and Warren.

We now have a very definite record of the successful nesting of this bird in the lakes area of southern Craven County. Dick Borden and Perrin Gower saw 12 adult birds at Great Lake on June 28, 1948. During the summer of 1949 and 1950 Mr. and Mrs. Matt Thompson observed this gallinule about Lake Ellis. Robert Holmes reported 12 on June 7 and 8, 1951. On September 2, 1951, the Thompsons found definite nesting proof as they watched 5 downy young follow 2 old birds along a canal bank. This was further confirmed when, on June

25, 1953, Bill Joyner joined the Thompsons to make good kodachrome pictures of adult and young Purple Gallinules at Lake Ellis. ☆

Genus **GALLINULA** Brisson.

FLORIDA GALLINULE.

Plate 19

Gallinula chloropus cachinnans Bangs. [219]

DESCRIPTION. Frontal plate bright red; plumage mainly dark bluish-slate; back and scapulars washed with olive-brown; a few white streaks on the flanks; belly whitish; under tail-coverts white; bill red, tipped with yellowish. Immature bird: lighter colored; the bill brownish and frontal plate much smaller. Length 12.00-14.50; wing 6.85-7.25.

RANGE. Breeds from Ontario to Panama; winters from North Carolina southward.

RANGE IN NORTH CAROLINA. Nearly or quite State-wide, mostly during the spring migration, but breeds and passes the winter to some extent in the coastal region.

The Florida Gallinule is a veritable water-chicken that singly or in small groups often walks about on the shore, pecking like a hen. It produces various clucking notes that further suggest a denizen of the barnyard. Its long, slender toes enable it readily to walk over floating grass clumps and lily pads. Its feet are not webbed, yet it swims well and unhesitatingly leaves its retreat in the marsh grass to swim about among the flags and lilies growing in more open water. Although found in most of the States, it is quite local in its distribution, and its comparative scarcity in North Carolina is probably due to the limited number of large fresh-water marshes and grass-grown lakes within its borders.

Most of the specimens thus far recorded in the State were found during the period of the spring migration. Several have been observed far from any lake or marsh, indicating that they had become exhausted while migrating, and dropped to earth wherever they chanced to be at the time. We know of twenty or more occasions when the Florida Gallinule has been positively identified in the State, and these indicate that it may be met with in almost any county.

Some of the records are as follows: Asheville, seen by Brewster in May, 1885, and one killed near the same place by Cairns, May 16, 1891; Seeman found two at Durham, April 30, 1917, and another, April 29, 1924. At Salisbury one was found April 27, 1923, by E. M. Hoffman; a specimen was discovered at Winston-Salem by Ralph Brimley, April 24, 1929; one was received alive at the State Museum from Hillsboro, April 24, 1932; and Craighill reports another found dead at Rocky Mount, April 20, 1939. Grey recorded them at Pea Island in May and June, 1941.

Some evidently pass the winter in this State. One was found near Raleigh, November 9, 1928. Earle R. Greene identified one in Hyde County, January 7, 1935, and E. L. Green, Jr., saw some "in winter" in the fresh-water ponds of the Cape Hatteras woods.

A few at least breed in North Carolina. Philipp found a nest with eggs at Lake Ellis, Craven County, June 16, 1909, and photographed them with the bird standing on the edge of the nest. The marshes of Mattamuskeet Lake would seem to be a favorable place for these birds to breed, and Earle Greene observed a gallinule there on May 13, 1935, and another on June 9. Samworth

reports from New River that some spend the entire year on his property, and on May 1, 1939, pointed out a pair to Pearson. Calvin Meekins, of Avon, says that in 1930, he saw two nests with eggs in the Phipps' ponds a few miles north of Cape Hatteras.

☆ New records are from 4 coastal and 10 inland points. Repeated breeding records are from Pea Island, and Lake Ellis. ☆

Genus **FULICA** Linnaeus.

AMERICAN COOT: BLUE PETER.

Plate 19

Fulica americana americana Gmelin. [221]

DESCRIPTION. Head and neck nearly black, rest of plumage dark bluish-slate, somewhat paler beneath; bill white; edge of wings, tips of secondaries and under tail-coverts white. Length 13.00-16.00; wing 7.25-7.60; spread 26.00-27.00.

RANGE. Breeds from Canada to New Jersey and sporadically in Florida; winters from Virginia to West Indies and Costa Rica.

RANGE IN NORTH CAROLINA. Common winter visitor in coastal region, occasional migrant in rest of State.

In Currituck Sound, late in December, 1902, Pearson saw "Blue Peters" massed thickly for a distance of at least half a mile. They did not take flight but, swimming or pattering to each side, merely opened a lane through which the little steamer passed.

Fig. 40. Coot.

Fig. 41. Foot of Coot.

This is a common winter bird in various parts of our coastal waters and is not infrequently found on the larger inland ponds and lakes. When rising from the water, it taxies for some distance, rapidly flapping its wings and kicking up little fountains of spray as its feet alternately strike the element it is seeking to leave. When a large flock is thus taking flight, the sound produced suggests the patter of hail or a heavy rain. Sometimes these birds feed along the shore, eating insects, also seeds, buds, and other vegetation.

In open water they feed by "tipping up" or by diving many yards to feast on wild celery and other choice vegetation, much enjoyed by various ducks. At a little distance they may be mistaken for ducks, but closer inspection will reveal the bobbing head and white bill of the coot.

Although there have been one or two reports indicating that coots occasionally breed in North Carolina, we have as yet no positive evidence that such is the case. They begin to arrive from the north in September and usually depart by the end of May. Pearson and Walker had the surprising experience of seeing a flock of 81 on June 22, 1939. These birds were observed swimming near the shore on the eastern side of Kitty Hawk Bay.

The Brimleys, who have long kept records of the appearance of coots in Wake County, regard them as "occasional visitors" that appear most often during April, May, November, and December. R. B. Wallace has seen them on Lake Ashnoca, near Asheville, in late October and early November. Grey reported twenty-five at Swansboro, Onslow County, October 18 and 19, 1937.

Earle R. Greene, writing of this bird at Mattamuskeet Lake in *The Chat* for September-October, 1937, said: "Common throughout the winter and at times very tame. In a yard by the lake at Fairfield, 33 Coots were counted, almost as tame as chickens. This was in March when they seem to seek the shore and banks in preference to staying in the water . . . The last Coot seen by me [in spring] was on May 21, 1935." Coots, like their near relatives, the rails and gallinules, are legal game birds and their flesh is enjoyed by many.

☆ This continues to be an abundant bird in coastal waters and often showing a choice for fresh-water food. A report of note is that large numbers of Coots, in Currituck Sound, were preyed upon by Herring and Black-backed Gulls during February, 1950. Of inland records there are Raleigh (March, April, May 5, and October, November), Elkin (September, January, and March), Greensboro (July), Four Oaks (March), Rocky Mount (October, December, and March), Henderson (December), and Greenville (April). ☆

Order **CHARADRIIFORMES**. Shore Birds, Gulls, Auks, and their Allies.

The birds of this order, while having in common certain anatomical characters, differ so much in form and external structure that ornithological systematists have deemed it wise to classify them into three separate groups which for convenience in nomenclature are called suborders. Some of the characteristics of each of these groups are as follows:

Suborder *Charadrii* includes what we may arbitrarily call small and medium-sized wading birds with long toes which in some cases are webbed at the base. They usually inhabit beaches and other shore lines. The young are precocial and able to follow their mother almost as soon as hatched. Members of the group are known as oyster-catchers, snipe, sandpipers, curlews, godwits, plovers, turnstones, avocets, stilts, and phalaropes.

Suborder *Lari* includes long-winged, short-legged, web-footed, aquatic birds. The young are semiprecocial. They spend much time on the wing and are distinctly birds of the sea, the lakes, and larger rivers. The group includes jaegers, gulls, terns, and skimmers.

Suborder *Alcae* includes birds that have rather short wings, short legs, and webbed feet with the hind toe always absent. The legs are placed so far posteriorly that, when perched, the birds stand almost upright. Young remain in the nest for some time. All are birds of the ocean, and include auks, dovekies, murres, puffins, and guillemots.

In North America the three suborders collectively are made up of ten families, divided into 71 genera that contain 164 species and subspecies.

In North Carolina, birds of all these suborders are present and are composed of representatives of nine families, including 43 genera and 63 species and subspecies.

Family **HAEMATOPODIDAE.** Oyster-catchers.

Genus **HAEMATOPUS** Linnaeus.

AMERICAN OYSTER-CATCHER: CLAM BIRD.

Plate 20

Haematopus palliatus palliatus Temminck. [286]

DESCRIPTION. Adult: head, neck, and upper breast black; back and wing-coverts brown; upper tail-coverts, base of tail, lower breast and belly white; primaries and tip of tail dusky; bill, 3.50; toes, three in number. Length 17.00-21.00; wing 9.75-10.25.

RANGE. Breeds along Atlantic Coast from Virginia to Brazil, also on Pacific Coast from Mexico to Colombia, South America.

RANGE IN NORTH CAROLINA. The ocean beaches, oyster bars, and sandy islands.

This fine bird, with boldly marked plumage of black, brown, and white and with long red bill, is the most conspicuous feathered denizen of the shell-strewn ocean beaches. It flies strongly, runs rapidly, and its loud notes of alarm resound along the dunes when danger appears. It is not an abundant species anywhere, but at certain places on the North Carolina beaches, especially in the neighborhood of the inlets, one or more pairs may usually be found.

The birds feed on shrimp, sea urchins, barnacles, and other life of the sea margin, including various mollusks. When the tide goes out, exposing oyster bars on the mud flats, the oyster-catcher comes, and driving its chisel-like bill between the partly opened shells of the oyster, quickly cuts the adductor muscle and proceeds to enjoy the luscious bivalve.

Our oyster-catchers invariably lay their two or three spotted eggs in a slight depression on a dry beach within sound of the roaring surf.

In June, 1939, Pearson and his associates found these birds much in evidence on the beaches and about the islands and exposed shoals from South Carolina to Ocracoke, north of which point they were noted only on the ocean beach. Some days from 20 to 40 were observed, usually in pairs. Six nests with eggs were found. Grey found young just hatched near Calabash on June 7. Here, the same day, was also seen one young that was nearly grown. Two flocks of these

AMERICAN OYSTER-CATCHER.

birds were seen near the mouth of the Cape Fear River by Pearson, November 2, 1941. In one of these there were 40 birds, the other being estimated to contain 120. Evidently the oyster-catchers had gathered for the long migration trip southward.

☆ We add 6 records from coastal points, down to Southport. Records indicate that some birds spend the winter around Wilmington. Nesting records are from Shell Castle Island, Shackleford Banks, Wrightsville Beach and Battery Island. ☆

Family **CHARADRIIDAE.** Plovers and Turnstones.

Shore birds with long pointed wings, short bills, and rather large rounded heads, and often with the hind toe absent.

Genus **VANELLUS** Brisson.

Large plovers with unstreaked plumage and crested heads.

LAPWING.

Vanellus vanellus Linnaeus. [269]

Description. Upperparts mostly metallic bottle-green, bluish or purplish, the former predominating; front and top of head, chin, throat, and breast uniform bluish-black; sides of head and neck white; upper tail-coverts rufous; basal half of tail and its tip, white; belly white. In winter the chin and throat also are white, leaving a broad black band on the breast. It possesses a large erectile crest. Length 13.00; wing 8.50-9.00.

Range. Various parts of Europe, Asia, and northern Africa. Especially common in Belgium, Holland, and Great Britain.

Range in North Carolina. A rare and unusual straggler.

On November 12, 1926, E. T. Noel shot a Lapwing near Siler City in Chatham County. It was brought to the State Museum, where as a mounted specimen, it has since been preserved. This appears to have been the fourth Lapwing which, wandering from Europe, had been rceorded in continental United States.

After the breeding season, the Lapwings, or "Peewits" as they are often called, assemble in flocks and engage in long erratic flights. One such wandering group crossed to the upper Atlantic Coast of North America in the winter of 1927-28. A number of the birds were taken in eastern Canada. Only one individual of this unfortunate expedition was noted by ornithologists as far south as the United States. (*The Auk*, April, 1928 and 1929.)

This is the species that produces the deliciously flavored "Plover's Egg" which has long been a popular delicacy with European epicures. The quantities gathered have been very great, and the prices demanded have been considerable, especially since it bccame popular for cafes to serve them hard-boiled at the cocktail hour in the capitals of Europe. The shipments from Holland alone have amounted to hundreds of thousands annually. From the island of Texel not less than 30,000 have been exported in a single season.

Genus **CHARADRIUS** Linnaeus.

PIPING PLOVER.

Plate 23

Charadrius melodus Ord. [277]

DESCRIPTION. Upperparts pale brownish-gray; forehead, collar round hind neck, and underparts, white; band behind forehead, line from bill to eye, and patch on each side of breast, black; the patches on chest sometimes united; in winter, and in females, the black is duller, often grayish. Length 6.25-7.50; wing 4.50-4.75.

RANGE. Breeds from North Carolina northward; winters from Georgia to Mexico.

RANGE IN NORTH CAROLINA. Coastal region during the migrations, breeding to some extent.

The plumage of this little plover is so pale that when it is stationary on a beach of pebbles, shells, or sand, it is virtually invisible to the human eye. It has a very unusual breeding range. If one should take a map of North America and draw a line from Nova Scotia westward to include southern Alberta, then down to central Nebraska and eastward to Pennsylvania, he would include in this crude circle most of its summer range. The remainder of its breeding territory is confined to a narrow strip on the ocean beach from Nova Scotia to North Carolina. The birds are quite local in their distribution, little groups of breeding pairs occurring at intervals about the lakes of the interior and along the Atlantic Coast. Especially in the mating and nesting season, they engage in many animated activities and their *queep queep queeplo* notes are heard with great frequency.

Fig. 42. Piping Plover.

Fig. 43. Semipalmated Plover.

Pearson saw four Piping Plovers on Pea Island, Dare County, May 13, 1898, one of which he shot and skinned for the State University collection. Bishop reported the species breeding here in 1901, nests with eggs being seen May 14, 16, and 21. He also found one or more nests on May 3, 1902, but none in later years. Cats liberated on the island about 1908 were said to have killed most of the breeding birds, and no eggs or young have since been reported in North Carolina. In migration, Piping Plovers are not particularly rare along the coast as attested by the field notes of the Brimleys, Burleigh, Collie, Grey, Pearson, Walker, and others.

The earliest spring record we have is March 11 (1938), and the latest autumn record is for October 20 (1937). These observations were both made by Walker on Pea Island.

☆ Coastal records from 7 points substantiate the above "range". December records are one from Pea Island and several from Wilmington, where some spent the winters between 1948 and 1951. ☆

SEMIPALMATED PLOVER.

Plate 23

Charadrius semipalmatus Bonaparte [274]

Description. Upperparts, deep grayish-brown; forehead, ring across hind neck, and underparts white; lores, forepart of crown, and band across chest black, the black being replaced by grayish-brown in winter. Length 6.50-7.50; wing 4.65-5.00.

Range. Breeds from Gulf of St. Lawrence north and westward to the Arctic Sea; winters from South Carolina to Patagonia.

Range in North Carolina. Seacoast during spring and summer migrations, occasionally found inland.

Inhabiting the North Carolina beaches are three kinds of little plovers, resembling to considerable extent the common Killdeer, but differing from it strikingly by being much smaller, and by the further fact that their necks have one instead of two dark rings. One of these little beachcombers is the Semipalmated Plover, so called because its three toes are partly webbed.

These birds begin to appear on our beaches, coastal mud flats, and about the shallow beach ponds late in July and are with us for eight or ten weeks before they depart for their winter sojourn in more southern climes. We may look for them to begin to return late in April and many often remain until late May or early June, when they leave for their amazingly short breeding season in the vast region that lies between Nova Scotia and the Bering Sea. They are nearly always seen in flocks numbering anywhere from half a dozen to half a hundred. Frequently they are associated with the Least and Semipalmated Sandpipers which, as a group, collectively are generally known as "Peeps."

Occasionally some wander inland as attested by the following records. C. S. Brimley at Raleigh took specimens, May 5 and 16, 1884, and May 22, 1909. In the same locality, Quay and Grey found two in October, 1938, one on the 17th and the other ten days later. Burleigh reports these birds as seen sometimes at Swannanoa in fall and late spring, and adds: "My extreme dates of occurrence in fall are August 3 (1932) and September 12 (1930); in spring, May 15 (1934) and May 26 (1934)."

☆ Significant records are for Wilmington (December-February). Inland records are Mount Olive (October), Raleigh (May and September) and Greensboro (May and September). ☆

WILSON'S PLOVER.

Plate 23

Charadrius wilsonia wilsonia Ord. [280]

Description. Forehead and line over the eye and underparts white; front of crown, lores usually, and band across the breast black (brown in female); upperparts brownish-gray. Length 7.50-7.90; wing 4.50; spread 15.00. Much like the Semipalmated Plover in appearance, but characterized by a longer and stouter bill, the white stripe above the eye,

and the fact that the black band on the breast of the male does not extend across the nape as a lower boundary to the white collar.

RANGE. Breeds on the sand beaches from Virginia to Florida, and along the Gulf Coast to Mexico.

RANGE IN NORTH CAROLINA. Along the ocean beaches in summer.

In North Carolina this is perhaps the most common and widely distributed beach-nesting bird, and if you find a nest you are pretty likely to find others in the same general neighborhood. Here, on the wide, undulating stretches of sand, where shells and ocean flotsam abound, this little plover lays its spotted eggs in a slight hollow of the ground. The peeping cries of its parents and the wash of the surf are the first sounds that reach the ears of the downy young that can run almost as soon as hatched.

The coloration of the bird blends well with its surroundings and often it is difficult to find at once the little plover whose cries indicate its close proximity. Even when it runs, a rapidly moving blur among the shells on the dazzling sand is the first impression that the sun-tired eyes of the observer is likely to register.

Nesting usually takes place in May and June. Many have seen the Wilson's Plover in this State and recorded their observations. Among those who have found them breeding may be mentioned Collie on Pivers Island, Beaufort Harbor, June 21, 1936; Bishop at Pea Island, April 24 and in May, 1905, and Walker at the same place May 28, 1941; Kelly, Pender County, May 3, 1931; Pearce in the same locality, May 18, 1930, and May 31, 1931; and Burleigh near Seaside, Brunswick County, June 3, 1932. Davis and Pearson found two nests with three eggs each in a Least Tern colony at Elmore Inlet, Pender County, June 10, 1939; and H. H. Brimley and Pearson found six nests with eggs on various islands of the Beaufort region, June 13 and 14. The species was then common along the coast, fifty or more sometimes being seen in one day.

☆ Beyond the above date range are Wilmington (March 24 and December 27). A new inland record is for Mount Olive (September 18). ☆

KILLDEER.

Plate 23

Charadrius vociferus vociferus Linnaeus. [273]

DESCRIPTION. Upperparts grayish-brown, *rump and upper tail-coverts rufous;* underparts white, as also forehead; front of crown, lores, and *two bands across breast,* black, the upper band completely encircling the neck below the white collar; tail mainly ochraceous, tipped with black and white bands. Length 10.00-11.25; wing 6.25-6.75; tail 3.50-4.00; spread 19.00-21.00.

RANGE. Breeds from central Mexico to Canada; winters from New Jersey to northern Peru.

RANGE IN NORTH CAROLINA. Breeds; also many migrants come from the north.

The Killdeer is a well-known bird in the State, and its heartbroken cry of *kil-dee, kil-dee* is as familiar to many farm boys as is the song of the robin. It is the one plover regularly found inland as well as on the coast, and many appear on almost any area of open ground, as a pasture, a river bar, a college campus, or

a golf course. Usually they are seen in pairs or associated in flocks, and their plaintive cries are heard both by day and by night.

Their spotted eggs, usually four in number, are laid on the ground in a slight depression made by the bird. Often the nest shows some slight lining, perhaps bits of leaves, a small chip or two, or maybe thin fragments of stone. The spot selected may be in a pasture, the sloping hillside by a pond, or in a cultivated field. The eggs are pointed and lie in the nest with their points to the center. April, May, and June are the breeding months. The Killdeer population of the State is much increased when the fall migration brings wintering birds from regions farther north.

From evidence thus far available, we feel justified in saying that the Killdeer breeds but sparingly in the extreme eastern part of the State. In fact, we have recorded only two places in the coastal region where this has occurred. In a field near Lockwood's Folly, in Brunswick County, Pearson watched two of these birds exhibiting their characteristic evidences of anxiety when an intruder approaches their young. A farmer pointed out the nest in which he had seen four eggs a few days before. This was on June 11, 1898. Samuel Walker stated in 1939 that he had seen Killdeer with their young on the flats of Pea Island, Dare County. The part of the State most commonly occupied by them in the breeding season seems to extend from Lenoir County westward to Buncombe. We have about ten records of the breeding of this species in the Raleigh area.

The Killdeer is of very great economic value on the farm. It consumes insects in great numbers, weevils, grasshoppers, beetles, spiders, and caterpillars being taken. Often little flocks patrol orchards and wide lawns and freshly plowed fields for grubs and similar food. Everywhere they go they are benefiting mankind.

☆ Conspicuously, this bird shows up all over the State. Early nesting has been at Raleigh (March 12), Chapel Hill (March 15) and Hillsboro (March 14). ☆

Genus **PLUVIALIS** Brisson.

AMERICAN GOLDEN PLOVER.

Plate 23

Pluvialis dominica dominica (Müller). [272]

Description. Adults: in summer, with the feathers of the upperparts black, margined and spotted with golden yellow; sides of head, chin, throat, and underparts black, bordered behind on head and neck by pure white. Winter birds with no black beneath, and with the upperparts less yellowish. The axillars and under wing-coverts smoky-gray in both plumages. Toes three. Length 9.50-10.80; wing 6.80-7.40.

Range. Breeds in the Arctic regions; winters in southern South America.

Range in North Carolina. Scarce fall transient.

Sixty years ago and even later, the American Golden Plover was a fairly common species in North Carolina during its autumn migration. It breeds from northern Manitoba northward to the islands of the Arctic Ocean, and afterwards migrates southward for the winter, often going as far as southern South America. Many of them fly enormous distances over the sea, some leaving the continent

from Nova Scotia and not again sighting land until they reach northeastern Brazil. Easterly winds at times bring some of the flocks, for a brief period, to the Atlantic seaboard of the United States.

In spring they migrate northward through central South America and on up the Mississippi Valley to their breeding grounds on the bleak tundras and the barren islands of the Arctic. They are much esteemed for the table. In autumn, like many shore birds at this season, they are always fat, and formerly their bodies brought good prices in the market. Modern shotguns so largely destroyed them in our part of the world that the United States Government has deemed it necessary to enact strict laws to protect them while within the boundaries of our country.

Fig. 44. Golden Plover (spring plumage).

Fig. 45. Foot of Golden Plover.

Coues, when stationed at Ft. Macon in 1871, stated that they were common in the Beaufort region in October and November. Our records of their appearance in the State since that time are very few. The authors of this book have learned of five places at which they have been seen in North Carolina during the past fifty years. Cairns, in 1898, reported it a "rare transient" in Buncombe County; one was killed by William Primrose at Raleigh in the fall of 1884; McAtee reported it three times in Currituck County, *viz.*, September 7 and 29, 1909, and August 30, 1910. Twenty-four years later, Craighill, at Rocky Mount, saw eight daily from September 11 to 18, 1934, and one on October 8, 1935. Butler reports it from the same region in September, 1937. On November 22, 1939, Walker saw one on Pea Island.

. . . . . .

☆ We add records from Raleigh (October 31) and Brunswick County (October 6). ☆

Genus **SQUATAROLA** Cuvier.

BLACK-BELLIED PLOVER.

Plate 23

Squatarola squatarola (Linnaeus). [270]

DESCRIPTION. Adults *in summer:* back with small broken, white, grayish, and black bars, wide white stripe from forehead to breast; throat and breast black; belly white; tail white

with black bars. *In winter:* adults and young, white beneath streaked with brownish. Toes four. Length 10.50-12.00; wing 7.50.

Range. Nearly cosmopolitan, breeding far northward.

Range in North Carolina. Coastal region throughout the year, but few in midsummer.

The Black-bellied Plover may truly be called a world-wide species. It breeds on the Arctic Coast of Asia and America and its winter range extends as far as South Africa, India, Australia, and South America. In North Carolina, where it does not breed, we find it not only during migration but curiously enough individuals occur on our ocean beaches every month of the year.

This plover appears in many plumages, a detailed description of all of which would be an involved undertaking. To begin with, the young of the year have a molt that takes place any time between August and the following January; a little later (February to May) there is another partial molt. Then there is a molt just before the breeding season when the birds resemble, but are not quite like, the adults, although some individuals retain their winter plumage all through that summer. Between July and December, the bird finally attains the winter plumage of an adult bird. After this the adults have partial molt between February and May, and a complete molt beginning in July. All of which means that many Black-bellied Plovers are seen that do not have a black breast. Incidentally, the name of this bird is a misnomer, for it has a white, and not a black, belly. On the other hand, the adult Golden Plover, which this bird much resembles, does have a black belly.

Fig. 46. Black-bellied Plover (spring plumage).

Fig. 47. Foot of Black-bellied Plover.

This species is large for a shore bird, and in the spring plumage the black breast is conspicuous. In all plumages, the species in flight shows white on the wing and some black feathers on the side of the body. When the birds begin to arrive on their breeding grounds in spring, nesting duties commence at once and as soon as the young can shift for themselves, the parents hasten southward without waiting for their offspring, which follow later. Some reach us by the first of July. Thus, the last of the northward-moving host have scarcely left us before the vanguard of the adults from the north begin to arrive. These plovers in both the adult and immature plumage were seen along the coast in 1939, as

late as June 27, and were noted at various points by Davis, Grey, Pearson, and the Brimleys.

The Black-bellied Plover has long been a popular game bird, but is now protected by law. So common is it that it seems unnecessary to list the great numbers of records of its appearance in North Carolina. Rarely is it seen inland, though Craighill found it in Nash County on August 16, 1940, at least 100 miles from the sea.

☆ There are 26 more records from 8 coastal points, from Pea Island to Southport (August-December and February-May). ☆

Genus **ARENARIA** Brisson.

RUDDY TURNSTONE.

Plate 23

Arenaria interpres morinella (Linnaeus). [283a]

DESCRIPTION. Adult: largely chestnut; head and neck white with black bars and spots; black bar on upper chest; underparts white. *In winter:* upperparts blackish bordered with brownish-gray; lower back white. Immature plumage: chest mottled with dusky. Length 9.00-10.00; wing 5.50-6.00; spread 19.00-20.00.

RANGE. Both Americas, breeding in the Arctic regions and wintering from South Carolina to Brazil.

RANGE IN NORTH CAROLINA. Coastal region, especially common during the migrations.

The Ruddy Turnstone, because of its pied plumage, may easily be distinguished from all other shore birds that range our beaches. It begins to arrive from the north in July and is in evidence usually until October. During the winter the birds are scattered along many shore lines as far south as Brazil and Chile. Some, however, go no farther than South Carolina, and it is not unlikely that a few may occasionally remain in this State. The spring migration begins in March, but the flocks from the south do not all pass northward until late in June. Here and there a laggard may remain longer.

Like many shore birds, they feed upon the small animal life left on the wet beaches or on mud flats by the receding tides. So accustomed are we to think of turnstones while in North Carolina as inhabiting only those shores washed by the salt waters of the sounds or the neighboring ocean, that it was a matter of considerable interest when E. R. Greene found one feeding about the fresh waters of Lake Mattamuskeet on May 21, 1935.

As samples of the many dates of their occurrence along our coast, we will record those of H. H. Brimley at Beaufort, June 6, 1892, and March 24, 1897, and Ocracoke, May 21 to 24, 1912; Grey and Craighill in the Nags Head region, September 29 to October 1, 1937; and H. H. Brimley, Pearson, and Grover Quinn, Jr., on the sandy lumps in Pamlico Sound, near Buxton, June 21, 1939.

☆ We add 8 records from Beaufort (May and August), Cape Hatteras (August 28-September 4), Wilmington (December), and Topsail Inlet (July 17). ☆

Family **SCOLOPACIDAE.** Woodcock, Snipe, and Sandpipers.

These are birds with smaller heads and generally longer and more slender bills than the plovers. Usually they are streaked above and often below, and many of the species are confined almost entirely to sea beaches, and others about the adjacent waters. Still others are found on marshy grounds (often inland) or along the shores of lakes and rivers.

Genus **PHILOHELA** Gray.

AMERICAN WOODCOCK.

Philohela minor (Gmelin). [228]

Description. Upperparts varied with pale ashy, rusty, and black; back of head black with a few narrow cross bands of rusty; a dusky line from bill to eye; underparts plain light cinnamon. Weight 6 to 9 ounces. Length 10.50-11.75; bill 2.50-3.00; wing 4.75-5.75; spread 17.00-19.00.

Range. Eastern North America from southern Canada to Florida and Louisiana.

Range in North Carolina. Whole State at all seasons.

The Woodcock is the only one of the sandpiper group that prefers to dwell in shady damp woods. It gathers the grubs and worms upon which it feeds by endless probing with its long bill in soft, damp earth. It is a heavy eater. H. K. Job kept one in captivity for a time and found that in 24 hours it consumed twice its weight of earthworms, which he supplied. The holes made by the woodcock's borings are easily found and their presence indicates to bird students when this haunter-of-the-shadows is in the neighborhood.

Fig. 48. Woodcock.

During the autumn migration, the American Woodcock often comes in waves. A swampy woodland may suddenly contain many, and in a few days later none are to be found. As the ground freezes, thus making it impossible to probe for food, they move elsewhere looking for better conditions. Thus they are driven along river swamps toward the sea or swept in a general movement southward.

Near Marines, in Onslow County, thousands of them appeared on December 28, 1935. Samworth stated that they seemed famished and as they alighted,

began to probe into the earth everywhere—the sandy beach, his garden, the paths, and under the shrubbery by his door. That night a heavy sleet storm swept the region but the birds remained a day or two before departing.

The Woodcock's nest is made of leaves in a slight depression on the earth, usually in a bushy place. The Brimleys have found these as early as February. Four buffy-colored, spotted eggs are laid, the size being 1.50 by 1.15. The parent is much inclined to trust to her color protection when an intruder appears, and many photographs have been made showing a human hand within an inch or two of a brooding bird. An unconfirmed story credits the Woodcock with carrying its young between its thighs.

At the present time there is no open season for hunting this species.

☆ New records confirm the above range. This secretive species appears to have a general statewide distribution with rare winter concentrations along the coast. Nesting records, with spring ***singing-ground*** surveys for 1950-1953, confirm this pattern. ☆

NOTE: European Woodcock (*Scolopax rusticola rusticola,* Linn.) has occurred as a rare straggler from Newfoundland to Virginia and some day may be found in this State. It is a larger bird (length 13.50; wing 8.00) and its underparts are cross-barred with dark brown.

Fig. 49. Wilson's Snipe.

Genus **CAPELLA** Frenzel.

WILSON'S SNIPE.

Capella delicata delicata (Ord). [230]

DESCRIPTION. Top of head blackish, divided in the middle by a line of pale buff; upperparts blackish, the feathers bordered with pale buff; under wing-coverts, axillars, and sides sharply bordered and broadly barred with slate color on a white ground; throat white; breast buffy streaked with blackish; belly white. Length 10.00-12.00; wing 5.00-5.50; bill about 2.60; spread 17.00-18.00.

RANGE. Breeds from Alaska and Newfoundland to California and northern Pennsylvania. In the East, winters from southern Virginia to southern Brazil.

RANGE IN NORTH CAROLINA. More or less common during the migrations, and wintering at least from Chapel Hill eastward.

This well-known bird, sometimes called "English Snipe" or "Jack Snipe," is distinctly a marshland species. It is now illegal to shoot this bird in the United

States. It flies swiftly, and its erratic, dodging, zigzagging course through the air offers a severe test of the hunter's skill.

It is a common species and wherever wet meadows or marshes are found from the point of Cape Hatteras to the western mountains, one may possibly flush it from hiding during the period the species is in the State. It is particularly abundant in migrations and in the coastal counties is a common winter resident. In Nova Scotia, Pearson was surprised to find that the Wilson's Snipe in the breeding season will readily perch on fences, stumps, and other elevations, a custom they are not known to employ while in North Carolina.

Odum reports finding it at Chapel Hill from September 9 to May 12. Cairns said it was in Buncombe County only during the spring and autumn migrations, and gave the periods during which he noted it as March 5 to April 12, and October 20 to November 6. R. B. Lawrence reported it as arriving in Currituck in autumn as early as August 29 (1907). Pearson found it at Wysocking Bay, April 14, and at Cape Hatteras, May 6 (1898). E. L. Green, Jr., was at Cape Hatteras from May, 1935, to February, 1938, during which time he gave much attention to studying the bird life of the region. Among his notes we find that he here found the Wilson's Snipe as early as September 15 and as late as June 3.

☆ We add December records for Winston-Salem, Greensboro, Charlotte, Smoky Mountain Park and Yancey County (4 years). At Elkin records run from January to June. ☆

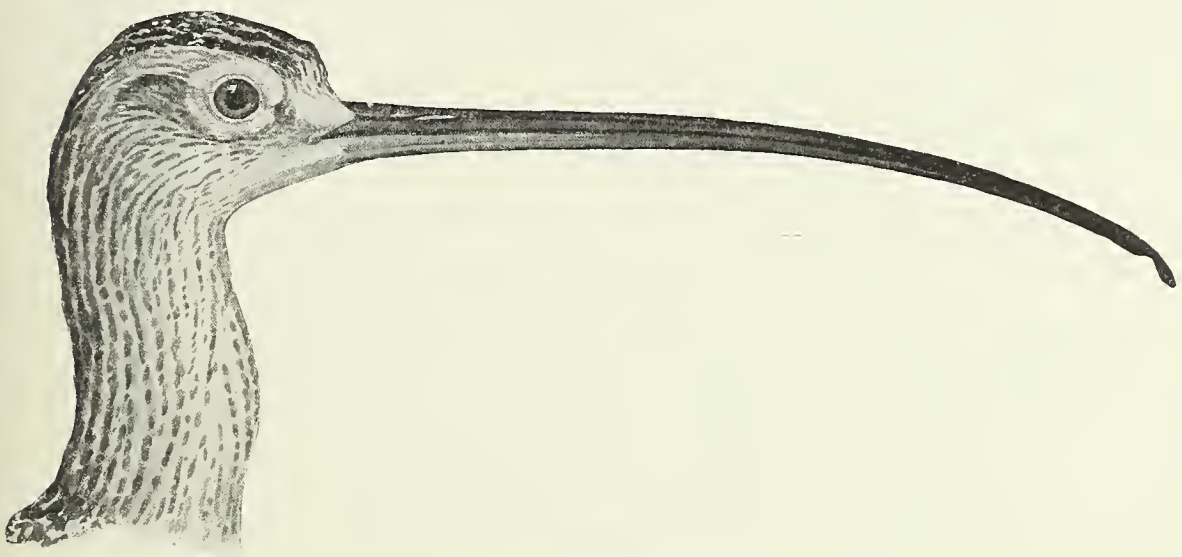


Fig. 50. Long-billed Curlew.

Genus **NUMENIUS** Brisson.

LONG-BILLED CURLEW.

Numenius americanus americanus Bechstein. [264]

Description. Head and neck streaked but former without median light stripe, and back barred with buffy and black; secondaries and quills rusty cinnamon, axillars deep cinnamon

without bars; underparts pale cinnamon, the breast more or less streaked. Length 20.00-26.00; wing 10.00-11.00; spread three feet, two inches; bill 4.00-8.00.

RANGE. Today breeds only in western United States; winters from southern Arizona to Guatemala.

RANGE IN NORTH CAROLINA. Extremely rare along the coast.

Sixty years ago the "Big Sicklebill" swarmed in great numbers on the North Carolina coast from early autumn until late spring. It is still a common species in favorable localities of various western States, but that portion of the population that once frequented the Atlantic Coast was largely extirpated by hunters or it has changed its migratory route. Arthur T. Wayne (*Birds of South Carolina,* 1910) thinks it was driven from the Atlantic Coast by the increasing numbers of Hudsonian Curlews, which pre-empted the favorable feeding grounds.

We know of only two observers who have reported the Long-billed Curlew in North Carolina during the present century. In *The Auk*, July, 1924, R. J. Coles tells of seeing some at Cape Lookout in July, 1903-1908, and handling a specimen, May 24, 1923. Samworth reports seeing the bird several times near the mouth of New River in Onslow County, and particularly mentions one he watched for some time as it stood on open ground near him on August 10, 1933.

☆ A Currituck Beach record is for 1909. Three were seen at Fort Fisher (August 14, 1953), just after a hurricane. ☆

HUDSONIAN CURLEW.

Plates 21 and 22

Numenius hudsonicus Latham. [265]

DESCRIPTION. Crown with a narrow median stripe of buffy; secondaries and quills mainly or entirely brownish, axillars barred with dusky; underparts pale dull buffy; breast narrowly streaked with dusky. Length 16.50-18.00; wing 9.00-10.25; bill 3.00-4.00.

RANGE. Breeds from the coast of Alaska to Manitoba. Winters from Mexico to Chile.

RANGE IN NORTH CAROLINA. Coastal region during migrations, some nonbreeding birds may pass the summer in the State.

There is a widespread opinion that the Hudsonian Curlew has been steadily increasing in numbers of late years. We know it in North Carolina only as a migrant that comes from the north in autumn and in spring returns again from the south. Our actual records of the dates of its coming and going along our seaboard are woefully meager. Our earliest date for one seen in the northward spring migration is April 29 (1911), when H. H. Brimley saw a flock of 20 or 30 at Orton Pond in Brunswick County. Our latest record of the bird moving southward in autumn was made by Samworth at New River Inlet, September 18, 1931. We have no winter records, as these birds pass the colder months south of the United States. Generally they are seen in flocks, and usually fly with necks fully extended. Sometimes they occupy open sandy beaches but they are particularly partial to marshy flats.

Samworth says that, near his place in Onslow County, curlews in migration always pass along the beach or over the sea or marsh, but never over the mainland. In reference to their movements late in June, he adds: "It does not seem

HUDSONIAN CURLEW.

that their northern flight ceases before they begin to pass again on their return southward."

☆ We add 20 records from 8 coastal and one inland point. Wilmington furnishes late records (November 29 and December 27) and an early record (April 1). One inland record for Mount Olive (August 12, 1955), and a record for Lake Mattamuskeet (October 25). Summer records extend from Cape Fear to Oregon Inlet. ☆

Genus **BARTRAMIA** Lesson.

UPLAND PLOVER.

Plate 22

Bartramia longicauda (Bechstein). [261]

DESCRIPTION. Light brown above, the feathers more ochraceous towards the edges, spotted and barred with blackish; crown blackish divided by a median buffy line; rest of head and neck ochraceous or buffy streaked with dusky; chin and throat plain whitish; primaries dusky, the outer one barred with white; outer tail-feathers light buff, broadly tipped with white, and more or less banded with black; inner tailfeathers brownish-gray; breast and sides whitish or pale buff, streaked or barred with black; belly whitish. Length 11.00-12.75; wing 6.75-7.00; tail 3.35-4.00; spread 20.00-21.50.

RANGE. Breeds from Virginia and Oklahoma north to Alaska. Winters in southern South America.

RANGE IN NORTH CAROLINA. Rare spring and autumn migrant.

This bird is rightly named, for, in truth, it is a denizen of the open uplands; although most of the records we have of it in the State of recent years have been made along the "Banks" that separate the North Carolina sounds from the ocean. Formerly it was an extremely abundant species in many of the northern and western States, but the millions killed for sport and for the markets have reduced its numbers almost to the vanishing point over great areas of its former range.

In general appearance, it is a brownish-gray bird with fairly long legs and neck. A close inspection reveals the fact that short brown and blackish, irregular bars and spots cover almost its entire plumage. It is noticeably larger than the Killdeer and, like it, is one of the farmer's most useful visitors, for its consumption of insects is enormous. However, today it is so rare that its economic importance is small.

The following are dates furnished by C. S. Brimley showing when Upland Plovers have been noted in the Raleigh neighborhood: April 4 to 30, 1888; April 10 to 27, 1889; April 6 to 12, 1891; April 20, 1892; March 29 and 30, 1896; April 7 to 14, 1900; April 10, 1901; and April 17, 1915. And now for nearly a quarter of a century he has not been able to learn of one appearing in Wake County. In the spring of 1893, Pearson met a man on a road in Guilford County, carrying one he had just shot. Cairns shot and skinned a male in Buncombe County, November 10, 1894.

On June 11, 1898, Pearson for several minutes watched six in an open pine-woods area between Southport and Lockwood's Folly. A colored man whom he encountered said the correct name of the bird was "Wild Mare" or "Flying Colt," because it whinnied when it flew overhead. The puzzling date of this observation was matched by Wayne in South Carolina two years later. At

various times between May 11 and June 20 he watched a pair whose behavior indicated they were breeding in a cotton field near Mount Pleasant.

Aside from Pearson's Southport record, we know of no other Upland Plovers being seen in eastern North Carolina until August 16 and 18 (1934) when Burleigh recorded four at Kitty Hawk, feeding in the short grass of the sand dunes. In August, 1936, Craighill found two in a dry, grassy field back of the Wright Memorial at Kitty Hawk, and on August 15, 1939, noted two at the Rocky Mount Airport in Nash County. Grey and Walker observed some of them on Pea Island and other places in Dare County in August and September of 1938, '39, and '41.

In western North Carolina, C. E. Gregory saw four near Morganton, April 19, 1928, and a pair near the same place, May 6, 1940. Burleigh noted Upland Plovers at Asheville in autumn as early as August 5 (1933) and in spring until April 3 (1931).

☆ New records come from Morganton (April 6 and 12), Mountain Park (April 20), Greensboro (March 28), Raleigh (March 20, April 6, and October 12), and Rocky Mount (July 15). ☆

Genus **ACTITIS** Illiger.

SPOTTED SANDPIPER.

Plate 23

Actitis macularia (Linnaeus). [263]

DESCRIPTION. Plain grayish-brown above more or less spotted with black; line over eye and underparts white; below *heavily marked with round black spots;* secondaries broadly tipped with white, this showing as a conspicuous light band on each wing when the bird is flying. Immature birds lack the black spots on breast and belly. Length 7.00-8.00; wing 4.00-4.50; spread 13.00-14.00.

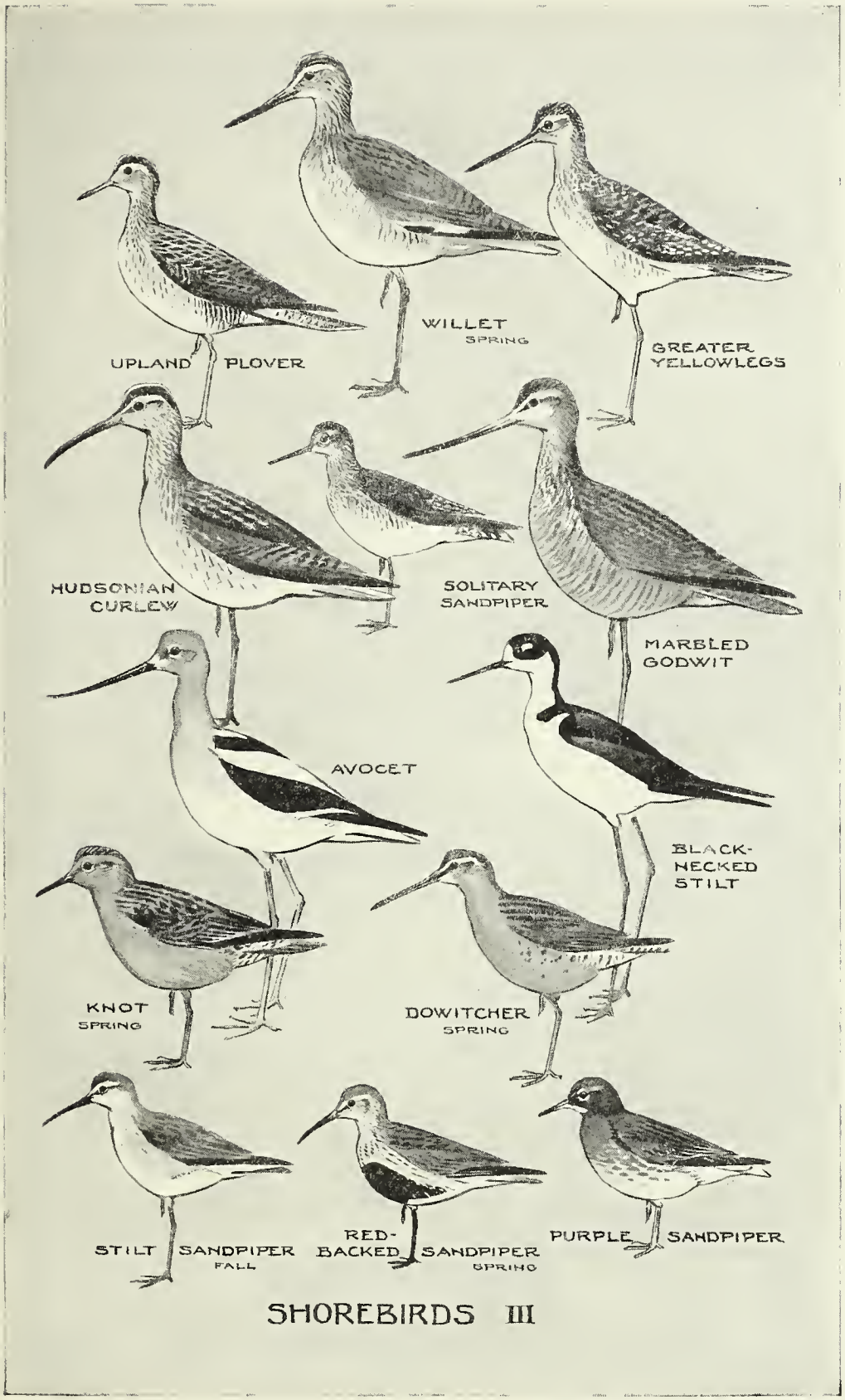
RANGE. Breeds from Alaska to California and sparingly to North Carolina. Winters from South Carolina to Argentina.

RANGE IN NORTH CAROLINA. Whole State during the migrations and rarely breeds.

Spotted Sandpipers are common migrants throughout the State in April and May, and again from mid-July to early October. Possibly a few may spend the winter. Along the shores of lakes and streams this alert little sandpiper gathers its living from the water's edge. You may find one standing on a half-submerged log or stone. As you approach, it bows and teeters, then, with a jerky flight, flies out low over the water and curves back to the shore not far away.

A considerable number spend the summer in North Carolina, so many, in fact, that it seems hard to think that all of them are merely casual, nonbreeding birds. The bird students at Raleigh find some during the summer in Wake County. Seeman contended (1929) that the bird breeds in Durham County. Coues (1871) said it was a summer resident at Fort Macon but did not mention that it bred there, and Cairns (1891) made the same statement in reference to this species in Buncombe County.

However, it was left to Thomas D. Burleigh to provide positive proof that the Spotted Sandpiper, at least occasionally, breeds in North Carolina. In manuscript form he made the following observation regarding this species: "It was not



SHOREBIRDS III

Courtesy of Roger Tory Peterson

until June 20, 1932, when young a few days old were found at the bass ponds at Swannanoa, that I was convinced that this species actually nested about Asheville. At no other spot have I observed it in June, although it is quite possible that other pairs may have been overlooked."

An interesting record is of one taken at Raleigh, September 27, 1929, that had been banded at Mount Zion, Illinois, earlier in the year. It had traveled at least 650 miles to reach Wake County, and upon arriving it was 550 miles east and 350 south of its starting point.

☆ Of numerous records, late ones ore from Fontono (October 2), Roleigh (October 22 and December 28), Rocky Mount (October 11), Woshington (December 27), and Wilmington (December 26). Two young at Lake Rovenol, Highlands (July 22) indicate o nesting record. ☆

Genus **TRINGA** Linnaeus.

EASTERN SOLITARY SANDPIPER.

Plate 22

Tringa solitaria solitaria Wilson. [256]

DESCRIPTION. Upperparts dusky-olive; head and neck streaked, and back spotted with white; underparts white; the breast streaked with dusky; legs greenish. Length 7.50-8.50; wing 5.00-5.50; spread 15.50-16.50.

RANGE. Summers from North Carolina to Newfoundland and Alberta; winters from the West Indies to southern South America.

RANGE IN NORTH CAROLINA. A common migrant.

Although Alexander Wilson wrote of this bird nearly 130 years ago, and it is a common summer species in much of Canada and the northeastern third of the United States, its nest was not found until 1903. The trouble had been that people, searching for it, had always looked down instead of up. That year, Evan Thompson discovered the Solitary's eggs in an old Robin's nest situated in a tamarack bog in Saskatchewan. Other nests have since been found, always in deserted nests of other birds built in trees—sometimes twenty feet from the ground.

These sandpipers begin to arrive in North Carolina from the far South in April and many remain until well along in June. By mid-July some may again be seen, which seems to indicate a very short breeding season, or the presence of nonbreeders lingering throughout the summer. In October they depart for warmer regions.

This bird usually frequents the shores of quiet forest pools or streams that flow through woodlands. The only species with which the observer might confuse it, is the Spotted Sandpiper, but the Solitary does not have the round black spots on breast and belly of the adult of that bird in spring, and on its dark wings there are numerous white dots. When alighting it has a habit of raising both wings just as its feet touch the ground.

☆ Additionol records sustoin the obove "Ronge". Included are Winston-Solem (July 11), Elkin, Tryon, Greensboro (Morch 21), ond Pea Islond (December 20). ☆

Genus **CATOPTROPHORUS** Bonaparte.

EASTERN WILLET.

Plate 22

Catoptrophorus semipalmatus semipalmatus (Gmelin). [258]

Description. Summer adults are brownish-gray irregularly varied with dusky; underparts whitish, the sides and breast heavily barred with dark brownish-gray. Winter birds, plain ash-gray above, immaculate white beneath. Length 14.00-16.00; wing 7.00-7.75; bill 1.90-2.30; spread 24.00-29.00.

Range. Breeds on the Atlantic Coast in Nova Scotia, and from New Jersey to Florida and along the Gulf Coast to Texas. Winters from South Carolina to Brazil.

Range in North Carolina. Common summer resident on the coast.

Approach the nesting grounds of the willet among the coastal sand dunes or the tall grasses of the drier portions of the beach, and the birds come forth to meet you, sounding their loud cry of *pilly-will-willet, pilly-will-willet.* On quivering wings that show large patches of white, they hover overhead, then circle off, but quickly return and renew their efforts to drive, or lure, you from the neighborhood. Their eggs, usually four in number, are placed in a grass-lined hollow on the ground, where they are more or less hidden from view by the surrounding grass. In favorite breeding areas several nests may be found not many rods apart.

Wayne (*Birds of South Carolina,* 1910) told how one of a pair of alarmed willets, he was watching, carried its three young, one at a time, for a quarter of a mile to a spot it evidently considered was a safer location. On each trip the young made the journey clasped between the thighs of its parent.

Regarding breeding dates, Pearson found a nest with 4 slightly incubated eggs at Lockwood's Folly, Brunswick County, June 13, 1898, and examined occupied nests during May, 1903, in Onslow and New Hanover Counties. On May 15, 1915, H. H. Brimley examined a nest with four eggs in Pender County. These eggs hatched June 13, and next day the young left the nest. In Pender County, Kelly saw eggs May 16 and 26, 1929, and Pearce found eggs in that region May 18 and 30, the same year. Burleigh reported willets breeding plentifully near Snead's Ferry, Onslow County, and in Brunswick County, May 30 to June 3, 1932. The bird is a common species on our coast from mid-April until October when, so far as our evidence goes, it leaves for the winter.

☆ We add 31 records of which Pea Island (December 27) and Wilmington (4 in December) indicate a wintering population. One inland record is for Wake County (August 13). ☆

WESTERN WILLET.

Catoptrophorus semipalmatus inornatus (Brewster). [258a]

Description. Adult in summer, slightly larger than the Eastern Willet. It is also a little paler. The bill averages one-tenth of an inch longer and the wing from bend of outer joint to tip of longest quill feather is about half an inch longer; and it has no bars on the tail-feathers. In winter, as Chapman has written: "The two can be distinguished only by the slight and inconstant character of size."

Range. Breeds in western Canada, also in the United States from Minnesota west. Winters from California and Florida to Peru.

RANGE IN NORTH CAROLINA. Occurring on the coast but how extensively is not known.

Our two willets are so nearly alike it is practically impossible for the average man to distinguish between them, without shooting a specimen, measuring the length of wing and the bill, and even then he may not know which one of the willets is in his possession. Bishop, through the years 1904 to 1909, reported this bird to be a common fall migrant at Pea Island. Burleigh (*The Auk,* 1937, p. 454) notes taking a willet in Albemarle Sound, August 20, 1934, that was referable to this subspecies. One was taken on Bodie Island August 17, 1939, by R. Collie.

This bird might well be called the "Inland Willet." The Eastern Willet breeds along the Atlantic coastal beaches and we, therefore, think of it as a salt-water species. On the other hand, the summer home of the Western Willet is in the great fresh-water prairie country of the southern Canadian provinces and southward to Nebraska, where it frequents the shores of lakes, marshes, and adjacent open country.

Genus **TOTANUS** Bechstein.

GREATER YELLOW-LEGS.

Plate 22

Totanus melanoleucus (Gmelin). [254]

DESCRIPTION. Summer adults: varied above with blackish, pale gray and white, the black predominating; throat streaked with dusky; flanks and under tail-coverts barred with dusky; rest of underparts streaked or spotted with dusky; belly white; legs yellow. Winter birds paler. Length 12.00-15.00; wing 7.50-7.75; spread 22.00-25.00; bill about 2.25.

RANGE. Breeds in Canada almost to tree limit; winters from North Carolina (sparingly) to Patagonia.

RANGE IN NORTH CAROLINA. Coastal region and sometimes seen inland.

The musical calls of the Greater Yellow-legs, heard along the beaches or over the marshy flats, are among the most characteristic and pleasing bird-notes of the coast line. As these birds feed they scatter over the shallow flats, but upon taking wing at once congregate in flocks sometimes containing hundreds of individuals. With marked dignity, their slender, yellow legs carry them along as they wade in search of food. In flight, their slender, graceful forms show to best advantage. Until recent years they have been shot extensively in the United States but now are protected by Federal law. In Barbados and other places in the far South they are killed for sport and for food. However, their numbers do not appear to be diminishing perceptibly.

Although more abundant in North Carolina during the spring and autumn migrations, further observations may reveal that a few at least may be found at any time. Already we have knowledge of their presence during ten months of the year, from February to November. As examples of these records we may mention February 8, 1897, Beaufort (H. H. Brimley); March 22, Raleigh (C. S. Brimley); April 25, 1930, Greensboro (Brown); May 3, 1931, Chapel Hill (Odum); June 1, 1935, Hyde County (Greene); July 22, 1904, Pea Island (Bishop); August 26, 1907, Currituck County (Lawrence); September 2, 1907, Knotts Island (Lawrence); and October 17 and November 17, 1934, Rocky Mount (Craighill).

☆ New records (48) sustain the above "Range", and inland records are one each for Raleigh, Henderson and Greensboro. There are 7 December records and one January record, from the coast, to fill in the year. ☆

LESSER YELLOW-LEGS.

Totanus flavipes (Gmelin). [255]

DESCRIPTION. Essentially similar to the Greater Yellow-legs but smaller. Length 9.50-11.00; wing 6.00-6.65; spread 19.00-20.00.

RANGE. Breeds north of the United States; winters to southern South America.

RANGE IN NORTH CAROLINA. Coastal region during the migrations and many also found inland.

The Lesser Yellow-legs breeds farther north and as a group passes the winter farther south than does the Greater Yellow-legs. It is seldom seen in winter as far north as the Gulf Coast of Florida and Louisiana. We have no knowledge of one being seen in North Carolina during the months of December, January, and February. Between the two species there is a striking resemblance in color and habits, and it is only when the two are together that the usual observer is able to determine with accuracy which bird he is watching. People well-acquainted with both species can distinguish them by their notes.

Fig. 51. Lesser Yellow-legs.

They are most common along the coast in autumn, as during the spring migration many journey northward by inland routes. C. S. Brimley reports that in Wake County they have been noted in the spring from late March to mid-May, and in the fall from August 17 to November 18. Brown saw them in Rowan County, March 21, 1925; Cottam identified one at Ocracoke, June 25, 1933; Burleigh said they were plentiful at Kitty Hawk, August 14-26, 1934; Lawrence wrote that they were so numerous at Knotts Island, Currituck County, in the fall of 1907, that he shot 434 in the week ending September 2.

☆ Numerous new records confirm the above "Range". Further winter records are for Pea Island (December), Lake Mattamuskeet (December-January), Morehead City (November 29), and Wilmington (December). ☆

Genus **CALIDRIS** Anonymous.

AMERICAN KNOT.

Plate 22

Calidris canutus rufa (Wilson). [234]

DESCRIPTION. Summer adult: light grayish above varied with black and tinged with pale rusty; upper tail-coverts white barred and spotted with dusky; line over eye and underparts uniform light cinnamon. Winter birds are plain ash-gray above and white below; neck and breast streaked with dusky. Length 10.00-11.00; wing 6.50; tail 2.50.

RANGE. Breeding in Arctic America, and wintering far southward.

RANGE IN NORTH CAROLINA. Coastal region during the migrations and sparingly in the summer.

This attractive bird rarely has been found along the Atlantic Coast of North America in the winter, virtually all of them at that time being in southern South America. It is another species whose breeding place was long a mystery to ornithologists. The first nest found was discovered in northern Ellesmere Land, about 600 miles from the North Pole, by Admiral Peary, on June 27, 1909. Fifty years ago knots swarmed along our coast in migration. Companies estimated to number from 500 to 2,000 or more at times were reported in those days. Flock-shooting was so easy and so deadly that by 1918 the great hosts were largely decimated. Since that time, owing to the passage and enforcement of Federal game laws, they seem to be slowly on the increase.

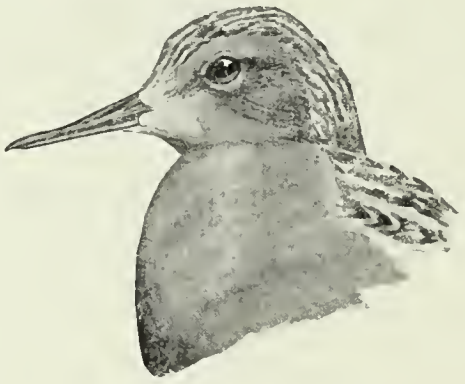


Fig. 52. American Knot.

These are distinctly birds of the ocean beaches. Wayne (1910) said that their appearance in South Carolina was "governed by the presence or absence of a small bivalve which is found a few inches under the sand. It is upon this shellfish that the birds feed almost exclusively."

In some regions the knot does not confine its habitat to the ocean beaches but now and then frequents mud flats or even damp lands where the grass is short. In such localities it also eats small crustaceans and worms. On the open prairies of Canada and western United States, where it often appears during migration, it is known to consume locusts, grasshoppers, and various other insects.

Bird students have recorded knots in North Carolina in many places, but never, so far as we know, except on the beaches. A few of these observations were at Currituck Light, May 20, 1932 (Burleigh); Ocracoke, June 25, 1933

(Cottam); Fort Macon, May 11, 1936 (Murray); and Pea Island, October 19, 1937 (Grey).

Along our coast we may begin to look for the knot in spring, about mid-April. The most of them seem to depart for the North in May, but some have been noted as late as June 25 (1933), and on rare occasions a few unmated birds may pass the summer with us. From July to mid-October they are again with us, as they move southward. Owing to its red breast in the spring plumage, the knot is sometimes called the "Robin Snipe."

In winter, the knot may go as far south as Patagonia. While the great mass of the birds travel to South America, a few scattered individuals are found occasionally in Florida or other southern States.

☆ We add 14 coastal records that confirm the above. Wintering (December) birds were seen about Wilmington for the years 1949, 1950, 1952 and 1953. ☆

Genus **EROLIA** Vieillot

This genus comprises small or medium-sized sandpipers with no webs between the bases of the anterior toes. Five species have been recorded from North Carolina.

☆ PURPLE SANDPIPER.

Plate 22

Erolia maritima maritima (Brunnich). [235]

DESCRIPTION. Summer adults: black above, margined with ochraceous to cream-buff; with fuscous-gray wings, greater coverts margined with white, upper tail coverts fuscous; throat and breast brownish gray, streaked with black; with white belly. Winter birds are ash-gray on head, neck, sides, and breast; fuscous on back and upper surface of wings; belly and under surface of wings white; short legs yellow to orange and base of bill yellow. Length 9.00; wing 5.00.

RANGE. Breeds in Arctic America. Winters from southern Greenland south along Atlantic Coast to Long Island and New Jersey; casual to the Great Lakes and south to Georgia and Florida.

RANGE IN NORTH CAROLINA. Occasional in coastal region.

Our records of this bird have come from the Wrightsville Beach-Fort Fisher area. Bob Holmes first saw and identified three, on December 27, 1948, on a rock jetty at Wrightsville Beach. Since that date 32 more records have been made by Appleberry, Baker, Mebane, Funderburg, and others. By months the records have been as follows: August 25 (1), October (7), November (5), December (8), January (5), February (2), and April (3). The extreme dates are August 25 and April 27. Funderburg collected 2 specimens in November, 1949. ☆

PECTORAL SANDPIPER.

Plate 23

Erolia melanotos (Vieillot). [239]

DESCRIPTION. Summer adults are light clay-color or brownish-buff, broadly striped with black; neck in front and chest light buffy-grayish, broadly streaked with dusky; rest of

underparts white; rump plain brownish-black. Winter birds are similar but less distinctly marked. Length 8.00 to 9.50; wing 5.00-5.50; spread 17.00-18.00. Contrary to the usual rule in the family, the males are larger than the females.

RANGE. Breeds on the Arctic Coast; winters in South America.

RANGE IN NORTH CAROLINA. Coastal region during the migrations and has been found in the interior.

While books on ornithology refer to this bird as the Pectoral Sandpiper, gunners for perhaps two hundred years and more have called it "Grass Snipe," which is not an inappropriate name when we consider the habitat it usually selects. Damp meadows or the upper reaches of marshes are favorite feeding places. Usually it lies close when an intruder draws near, and when flushed, darts away erratically, suggesting the flight of the somewhat larger Wilson's Snipe. Its numbers in a given region from year to year cannot be counted upon with any degree of certainty, for some seasons they are much more numerous than others.

Like so many of the small waders that breed in the Arctic regions and winter in southern South America, it makes two prodigiously long journeys each year. The Pectoral Sandpiper, that leaves its nesting grounds at the mouth of the Yukon River and flies to lower Patagonia for its winter vacation, could not get there without flying nine thousand miles even if it went in a straight line, which it does not do.

The male has a gular sac which it can inflate in the breeding season so that it resembles a great goiter nearly the size of the bird itself. With the aid of this amazing receptable there is produced a booming *too-u, too-u* that is supposed to thrill the heart of even the most coy female sandpipers of the region.

This species, which is a transient in North Carolina, appears more commonly along the coast in autumn than in spring. The majority of our spring records were made inland. Burleigh said they were plentiful at Kitty Hawk, August 14-16, 1934; Grey and Craighill saw them along the Banks between Nags Head and Pea Island, September 29 to October 1, 1937; Craighill reports them sometimes in large flocks at Rocky Mount, and specially mentions a flight between August 31 and September 18, 1934. There are also autumn records at Chapel Hill, November 18, 1933 (Odum); and at Raleigh, October 17 and 24, 1938 (Grey). Through the years, since 1888, the Brimleys in Wake County have many times noted these birds in spring at dates between March 25 and April 23. Gabrielson found one in Hyde County, December 9, 1940.

☆ We add new records as follows: Ocracoke (August 27), Cape Hatteras (August 28-September 4), Wilmington (March 21 and December 28), Rocky Mount (September 30), Raleigh (May 2-5 and September 5-6), Greensboro (September) and Davidson County (August 27). ☆

WHITE-RUMPED SANDPIPER.

Plate 23

Erolia fuscicollis (Vieillot). [240]

DESCRIPTION. Upperparts light brownish-gray and grayish-buff, streaked with blackish; upper tail-coverts white; breast streaked, the underparts otherwise white. Winter birds are somewhat duller. Length 6.75-8.00; wing about 5.00. Known by the generally pale coloration and *white rump*.

RANGE. Breeds in Arctic America; winters from Paraguay to Cape Horn and the Falkland Islands.

RANGE IN NORTH CAROLINA. Coastal region during the migrations, occasionally inland.

This medium-sized sandpiper appears to be not as numerous in North Carolina as was formerly supposed. It is a sociable little bird, usually feeding with other shore birds of like habits. Two females were collected from a flock of about twenty at Lake Ellis by H. H. Brimley in June, 1910. Collie found it at Beaufort, September 17, 1936; Burleigh noted it at Kitty Hawk, August 25, 1934; and Collie (1938) found two by the Neuse River, near Raleigh, August 16. Grey and Walker reported it at Pea Island, where, on June 9-13, 1941, Grey saw ten birds daily on a pond.

Arthur A. Allen, writing of experiences in the far North, said: "The call of the White-rumped Sandpiper reminds one more of some sparrow's song than the note of a shore bird. As the bird hovers on rapidly beating wings over its tundra home, its flight song can scarcely be heard."

☆ More records are from Pea Island (May 24), Wilmington (October 19) and Greensboro (April 24 and May 4). ☆

BAIRD'S SANDPIPER.

Erolia bairdi (Coues). [241]

DESCRIPTION. Adults in winter are grayish-brown, faintly streaked with dusky; chest washed lightly with buffy; belly whitish. In summer upperparts are spotted and streaked with black, gray, and buffy markings; white line over eye at all times. The young of the year have the feathers of the upperparts tipped with whitish, the breast less streaked with dusky than is the case with adults in summer. Length 7.00-7.60; wing 4.60-4.85.

RANGE. Breeds along the Arctic Coast from western Alaska to Baffin Island and southward to the Aylmer Lake region of Mackenzie; winters in Chile and Argentina southward into Patagonia. In migration, may be found through central North America and along the Atlantic and Pacific coasts of the United States and Mexico.

RANGE IN NORTH CAROLINA. Accidental.

Baird's Sandpiper closely resembles the White-rumped Sandpiper and is intermediate in size between the Least and Pectoral Sandpipers. Although largely a shore-inhabiting bird, it has been seen in the interior, frequenting high prairie lands "at least a mile from the water."

It is a great wanderer, many breeding north of the Arctic Circle and some journeying as far southward as Patagonia, Argentina, and Valdivia, Chile. It also wanders much during migration and may appear almost anywhere in the United States. We have not known it to be common on the Atlantic Coast, although specimens have been identified at various places from Nova Scotia to South Carolina and on the Gulf Coast of Florida.

Our one record for this bird occurring in North Carolina was made in the Asheville region by Thomas D. Burleigh. He has advised us that on September 1, 1930, he collected a Baird's Sandpiper at the bass ponds at Swannanoa.

☆ One new record is for Wilmington (November 25, 1949). ☆

LEAST SANDPIPER.

Erolia minutilla (Vieillot). [242]

DESCRIPTION. Upperparts blackish or dusky, the feathers edged and tipped with buffy or rufous; rump and median upper tail-coverts plain black or fuscous; neck and breast white or buffy streaked with dusky; rest of underparts white. Length 5.00-6.75; wing 3.50-3.75; spread 11.00-12.00.

RANGE. Breeds throughout Canada. Winters from North Carolina to Brazil.

RANGE IN NORTH CAROLINA. Coastal region (occasionally inland), especially during the periods of migration.

This is the smallest of all the sandpiper tribe. From bill-tip to tail-tip it is nearly an inch shorter than the well-known English Sparrow. Another shore bird with which it often associates, and which is almost as small, is the Semipalmated Sandpiper; and it takes a good eye to distinguish between them. However, there are differences to be found. The Least has yellowish-green legs; the other has blackish legs. The bill is slightly shorter and the neck and sides of the breast are at all seasons a little darker. These differences are not easy to determine without close scrutiny with a good field glass.

Fig. 53. Least Sandpiper.

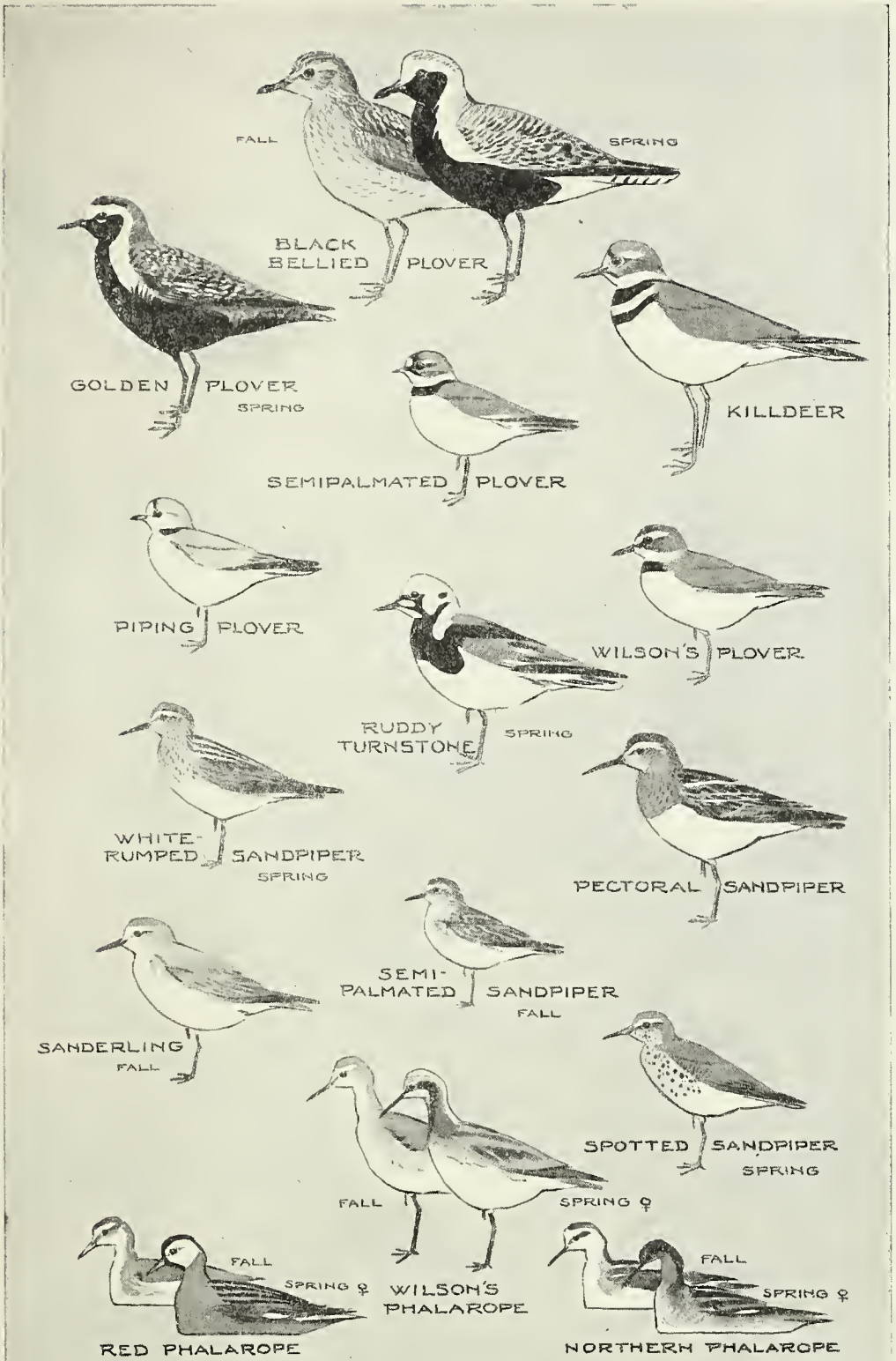
Fig. 54. Foot of Least Sandpiper.

Least Sandpipers are much inclined to collect in flocks with various species of larger beach birds. During migration, mixed companies of hundreds of such feathered travelers may crowd together, completely blanketing the earth in the lee of some sand ridge or high windrow of shells. Here, protected from the breeze and basking in the warmth of the sun's rays, an hour of relaxation may be enjoyed.

Like others of their kind, these little birds feed on insects and other small forms of life found by the seaside or the edges of the marshland. They have been known to consume creatures varying in size from mosquitoes to grasshoppers.

Least Sandpipers probably occur in this State every month of the year, but they are particularly numerous in May, June, August, September, and October. Occasionally some are seen inland. The Brimleys have found them present in Wake County, usually in May. Craighill makes a similar report from Rocky Mount, and Coker recorded them at Chapel Hill between May 5 and 21.

☆ We add 5 coastal localities to confirm the above, and inland records are for Mount Olive (September), Raleigh (May, July and September), Hoke County (August), Greensboro (May, August and September) and Elkin (May 4). ☆



SHOREBIRDS IV

Courtesy of Roger Tory Peterson

Genus **PELIDNA** Cuvier.

RED-BACKED SANDPIPER.

Plate 22

Pelidna alpina pacifica (Vieillot). [243a]

DESCRIPTION. In late spring and summer, above light dull rusty or tawny, streaked and spotted with blackish; anterior underparts grayish-white faintly streaked and strongly contrasted with the *black of belly*. In winter, *plain grayish above* with an indistinct stripe above eye, and the underparts white without black on belly. Length 7.50-8.75; spread 4.50-5.00.

RANGE. Breeds in the Arctic regions westward of Hudson Bay; winters from New Jersey to the Gulf of Mexico.

RANGE IN NORTH CAROLINA. Winter resident in coastal region.

In North Carolina the red back and black belly of this bird does not appear until the spring molt, which takes place during April and May. The Red-backed Sandpiper we see before this date usually has a grayish, dimly spotted back, white belly, and white stripe over the eye. It is a fairly common winter bird with us, generally confined to the immediate vicinity of the beaches, and may be found from late August to late May. Our earliest autumn record is August 21, 1934, when Burleigh found it at Kitty Hawk. More typical records are: Sherman at Southport, December 26, 1901; Burleigh at Rodanthe, Dare County, January 9, 1931; Pearson at Cape Hatteras, May 6, 1898; and J. B. White in Currituck County, May 26, 1910.

Although fall migrants from the north begin to reach our beaches by late summer, the great flights do not appear until October or later, at a time when many of the other sandpipers have passed on to more southern regions. These late comers rarely show any vestige of the red plumage which may now and then be detected among the earliest birds to arrive.

These sandpipers are not accustomed to appear in large flocks as is so often noted with closely allied species. Three or four, or more rarely half a dozen, is the usual number found in a group. Although keeping well together, they have the very common shore-bird habit of feeding in company with sanderlings or other related varieties.

The Red-backed Sandpiper breeds in eastern Asia, Alaska, northern Quebec, and other near-Arctic regions. In autumn it goes southward along the Atlantic and Pacific coasts, but in spring returns to its northern breeding grounds mainly by way of the Mississippi Valley, the Great Lakes, and Hudson Bay. Hence, at that season it is not as common on our beaches as in autumn.

☆ We add 23 records that largely confirm the above. One young specimen was seen feeding near the dam at Lake Kanuga, Hendersonville on August 25, 1953, by E. Milby Burton. ☆

Genus **LIMNODROMUS** Wied.

EASTERN DOWITCHER.

Plate 22

Limnodromus griseus griseus (Gmelin). [237]

Description. Upperparts black, the feathers edged or barred with buff or rufous; rump and upper tail-coverts white, the former with wedge-shaped, the latter with transverse bars of dusky; underparts in summer mostly dull rufous; the belly, however, white; breast heavily streaked with dusky. In winter the rufous of the underparts replaced by whitish. Length about 11.00; wing 5.65; tarsus 1.31; bill 2.15 (male), 2.24 (female).

Range. Breeds far northward; wintering from Florida to Brazil.

Range in North Carolina. Common during the migrations from late April through May, and again in July, August, and September. May winter casually in the State.

The Eastern Dowitcher, which in form so strongly suggests the Wilson's Snipe, is a common migrant to our coast and often is seen in flocks on mud flats, shell banks and along the extensive reaches of the ocean beaches. This is one of the migratory waders that also may perhaps be found in small numbers during the summer and winter months. In migrating to their northern breeding grounds, some of them doubtless leave the coast and fly in a northwesterly direction toward their Arctic summer abode. Like other birds of this order, they subsist, while in North Carolina, on small animals inhabiting the shallows bordering the sea.

Fig. 55. Eastern Dowitcher.

Bishop found dowitchers at Pea Island on April 27, 1905, and on July 7, 1902. At Cape Hatteras, they were common throughout most of May, 1898 (Pearson). McAtee recorded them on the beaches of Currituck County, September 7, 1909, May 23 and August 5 and 25, 1910, and May 4, 1911; Collie observed some at Beaufort, September 17, 1937. A large flock (perhaps 100) was seen on the south side of Hatteras Inlet by H. H. Brimley, Pearson, Walker, and Grover Quinn, Jr., June 19, 1939.

☆ We add 11 records, including December records for Wilmington in the years 1948, 1949 and 1951. Two inland records are for Guilford County (August and September). ☆

INLAND DOWITCHER.

Limnodromus griseus hendersoni Rowan.

DESCRIPTION. Very similar to the Eastern Dowitcher, but differs from it in having a longer bill, 2.21 (male), 2.43 (female). The wing also is longer, 5.73 (male), 5.81 (female). The spotting on the plumage of the underparts is more sparse and more evenly distributed. The plumage of the back is lighter. In summer the rufous of the underparts extends on to the belly.

RANGE. Known to breed in Alberta and Manitoba, and regions beyond the Arctic Circle westward from the Anderson River. Believed to winter chiefly in tropical and semitropical America.

RANGE IN NORTH CAROLINA. Accidental.

The Inland, or Alberta, Dowitcher is another example of a bird breeding in the far West which in some cases travels eastward across the continent before turning southward towards the warm shores where it is accustomed to spend the winter.

The first record of this dowitcher's appearance in North Carolina was on July 5, 1934, when Burleigh discovered one at the bass ponds near Swannanoa, Buncombe County. Upon collecting it, he found it to be a female in full spring breeding plumage. A few weeks later, while in Dare County within a short distance of the ocean, he again met with the Inland Dowitcher.

In *The Auk*, 1937, p. 454, Burleigh records his second encounter with this bird. He wrote: "Dowitchers were fairly plentiful at Kitty Hawk during the latter part of August, 1934. Small flocks of from four to twelve birds were seen daily feeding with other shore birds at suitable spots on Albemarle Sound. One bird taken August 14, 1934, is clearly referable to this recently described race from the interior of Canada."

LONG-BILLED DOWITCHER.

Limnodromus griseus scolopaceus (Say). [232]

DESCRIPTION. Plumage in general similar to that of the Eastern Dowitcher but the rufous of the underparts covering the belly as well as the breast; the bill is actually longer in both sexes than that of the Eastern Dowitcher; and in the female longer also than that of the Inland Dowitcher. The breast is heavily streaked, which feature distinguishes it from the Inland Dowitcher.

RANGE. Western North America, breeding far north; winters from Gulf Coast to West Indies and Ecuador.

RANGE IN NORTH CAROLINA. Rarely during the migrations.

In listing the Long-billed Dowitcher in the 1919 edition of "The Birds of North Carolina," we wrote: "This is a bird of the middle and western States, but occurs regularly in the East in small numbers. The only North Carolina records available are from Beaufort (Atkinson), Pea Island (July, 1904, Bishop), and two specimens taken by Bruner at Beaufort, August 18 and 20, 1910."

Since then there had been nothing new to report regarding this bird, except William Rowan's article on the "Status of Dowitcher with Description of a New Subspecies" (*The Auk*, January, 1932, pp. 14-35), until Grey collected one at Oregon Inlet, August 15, 1941. By comparing this specimen with the skins in

the State Museum, a specimen taken in Carteret County, March 24, 1897, also proved to be of this subspecies.

Genus **MICROPALAMA** Baird.

STILT SANDPIPER.

Plate 22

Micropalama himantopus (Bonaparte). [233]

Description. Upperparts in summer varied with black, gray, and light buff; upper tail-coverts white, marked with dusky streaks and bars; underparts white barred with dusky. In winter the upperparts are uniform ash-gray; the upper tail-coverts as in summer; stripe over eye and underparts white; the breast streaked with dusky. Length 7.50-9.25; wing 5.00-5.50; culmen 1.55-1.75; tarsus 1.55-1.70.

Range. Breeds beyond the tree limit from Hudson Bay westward. Winters from southern Texas (casually) to Chile and Uruguay.

Range in North Carolina. Coastal region during the migrations.

In the winter plumage, this long-legged sandpiper, although somewhat smaller than the Lesser Yellow-legs, closely resembles it and may easily be mistaken for that species. From the vast tundra country of the far North, it passes along our coast in autumn as it journeys towards its winter home in South America. In spring we may again look for it on our beaches. At no time is it an abundant species with us.

Fig. 56. Stilt Sandpiper (spring plumage).

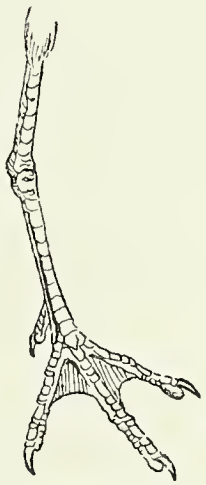


Fig. 57. Foot of Semipalmated Sandpiper.

The first record of its occurrence in North Carolina was on May 19, 1898, when Pearson secured a specimen at Cape Hatteras. It was flying alone when shot and no others were seen. This remains our only spring record. Nine years later Lawrence, shooting in Currituck County, reported fifteen between August 26 and September 2, 1907, and between August 14 and 22, 1908, he counted seventy in the same region. In this same general region, late summer records were made by McAtee in 1909: J. B. White in 1910; Burleigh in 1934; and Craighill in 1935. The species seems to be getting more numerous. Between August 5 and September 17, 1940, Walker, on Pea Island, saw Stilt Sandpipers on five occasions, "about 150" being the greatest number observed in one flock. "Only fall or perhaps juvenile plumages were noted on these birds," Walker has written us.

☆ We add Wilmington records for October 14 and May 3-6, and one for Raleigh (September 1-8). ☆

Genus **EREUNETES** Illiger.

SEMIPALMATED SANDPIPER.

Plate 23

Ereunetes pusillus (Linnaeus). [246]

DESCRIPTION. Upperparts dusky margined with brownish-gray and a little rusty; underparts white; breast streaked with dusky. Length 6.25; wing 3.65-4.00; bill .68-.92.

RANGE. Breeds in Arctic America; winters from Georgia to Patagonia.

RANGE IN NORTH CAROLINA. Coastal region during the migrations, from early April to early June in spring, and through August, September, and October in fall. Occasionally inland.

The genus *Ereunetes* contains two sandpipers, the Semipalmated and the Western, each with the toes connected by a web at their base. Both so closely resemble the Least Sandpiper, that to distinguish them when groups are feeding and running along the beach requires close observation with a field glass. The three often associate in flocks and collectively are known as "Peeps." There is a difference in the bills. That of the Semipalmated is a little heavier than the Least; and the Western's bill is longer and thicker than the others. The best field mark is the color of the legs. Those of the Least are greenish or yellowish; while with the others the color is blackish. All three birds are about the same size, although the Western Sandpiper is slightly larger than the others. They have similar habits, and the differences in the plumage, while very real, certainly are not conspicuous.

Among the innumerable flocks of small wading birds that throng our beaches during the spring and fall migrations, the Semipalmated Sandpiper is an extremely common species. Especially is it in evidence during April, May, and early June. By August they begin to return from the north and in September and October again are much in evidence. Semipalmated Sandpipers may occur on almost any open shore of the coast or its immediate vicinity. Like some other species which we are accustomed to think of as distinctly coastwise in their range, this one at times wanders inland. C. S. Brimley reports that they have been found at Raleigh, May 22, 1909; April 13 and May 5 and 6, 1919; May 6, 1936; and May 18, 1937.

☆ New records are from Pea Island (December 29), Cape Hatteras (August 28-September 4), Beaufort (April, May and August), Bogue Banks (August 3), Wilmington (December and April), Mount Olive (May and September), Raleigh (September) and Greensboro (August-October 7). ☆

WESTERN SANDPIPER.

Ereunetes mauri Cabanis. [247]

DESCRIPTION. Much like the Semipalmated Sandpiper but more rusty in summer plumage, and always with a longer bill, at least sex for sex; otherwise hardly distinguish-

able in winter plumage when the rusty is much less evident. Bill .85-.95 (male), 1.00-1.15 (female).

Range. Breeds in western Arctic America; winters along the coasts from Washington and the Carolinas to Peru and Venezuela.

Range in North Carolina. Coastal region during the migrations; exact status not well-known.

This bird, which so closely resembles the Semipalmated Sandpiper, probably occurs along our coast regularly in great numbers, but anything like a full knowledge of its status in this State has not as yet been determined. However, we know that some remain throughout the winter.

Specimens in North Carolina have been collected and identified, or their presence otherwise satisfactorily determined, on the following occasions: Pea Island, four taken by Bishop, February 7-18, 1901; Beaufort, four killed by Bruner, August 28-30, 1909; recorded at Rodanthe, January 17, 1931; and Kitty Hawk, August 14-26, 1934, by Burleigh. Between Kitty Hawk and Pea Island, August 14-26, 1937, "plentiful" (Grey and Craighill); and from Fort Macon, October 5, 1938, "several" were reported by Grey and C. S. Brimley.

☆ New records are from Pea Island (December 29), Cape Hatteras (August-September), Beaufort (August 4), Wilmington (April 1 and December 3), and Mount Olive (October 31). ☆

Genus **TRYNGITES** Cabanis.

BUFF-BREASTED SANDPIPER.

Tryngites subruficollis (Vieillot). [262]

Description. Upperparts dull grayish-brown or buff varied with blackish; underparts buff, often streaked or speckled on chest with dusky; under primary-coverts and inner webs of quills mottled with dusky on a whitish background. Length 7.00-9.00; wing 5.00-5.50.

Range. Breeds along the Arctic Coast from northern Alaska to northern Mackenzie; south in winter to southern South America.

Range in North Carolina. So far taken in the State only once.

This sandpiper finds a place in our book on the authority of F. W. Koble, of New York City, who, in *The Auk* for January, 1921, p. 108, records the capture of three specimens at Whitlock, Currituck County, on September 12, 1911. Near the same place, Koble found six, two days later.

This, the only sandpiper whose entire underparts are brownish, is rare on the Atlantic Coast. It is a trusting, unsuspicious bird, and the ease with which large numbers could be killed by flock-shooting was, for long years, a great joy to the market hunters of the West.

In migration these birds are still numerous on the prairies of western Canada and in the Mississippi Valley regions. Their occurrence is rare on the Pacific Coast south of British Columbia.

Genus **LIMOSA** Brisson.

MARBLED GODWIT.

Plate 22

Limosa fedoa (Linnaeus). [249]

DESCRIPTION. Pale cinnamon or ochraceous; the head and neck streaked; the remaining upperparts barred and spotted with dusky; the breast, sides and flanks barred with dusky in adult, immaculate in young birds. Length 16.50-20.50; wing 8.50-9.00; spread 30.00-40.00.

RANGE. Breeds in southern Alberta and Manitoba southward to South Dakota; winters from Florida to Ecuador.

RANGE IN NORTH CAROLINA. A rare migrant on the coast.

The godwits get their name from an interpretation of their cries which, to many, sound like *god-wit, god-wit, god-wit.* Of all the forty-two kinds of shore birds that have been recorded in North Carolina, the Marbled Godwit is the largest, with the single exception of the Long-billed Curlew. Formerly it was an abundant species but it has been a victim of the plow and the shotgun. Its restricted breeding grounds in southern Canada and the northern prairie States have been destroyed in the interests of agriculture, and gunners have taken heavy toll. As a race, it appears to be approaching oblivion; the great flocks of godwits are no longer seen.

Coues said they were abundant about Fort Macon from August to December, 1871, and C. J. Maynard reported them still plentiful in the same neighborhood on November 17, 1876. But since those days we have a scant half dozen records of the Marbled Godwit.

The keeper of the Currituck Lighthouse reported to the Biological Survey that some appeared between April 15 and June 1, 1898, and again between April 22 and June 2, 1899. Since the turn of the century we have Bishop's record at Pea Island, May 20, 1901, and between July 11 and August 19, 1904; Kobbe's account of killing two in Currituck County, September 12, 1911; Samworth's find of three at New River Inlet, August 10, 1933; Burleigh's discovery of one at Kitty Hawk, August 18, 1934; a bird discovered by Craighill near Roanoke Island, June 1, 1938; and three taken from a hunter near Avon, five miles north of Buxton, by Walker, August 24, 1938. On September 24, 1941, Walker saw nine on Pea Island.

☆ Added records are from Wilmington on December 24 and August 4, 1949, and August 14, 1953; Fort Fisher on December 29, November 27, and June 22. ☆

HUDSONIAN GODWIT.

Limosa haemastica (Linnaeus). [251]

DESCRIPTION. Head and neck in summer pale chestnut streaked with dusky; underparts deeper chestnut barred with dusky; back blackish varied with buffy; upper tail-coverts with a broad band of pure white. In winter, back dull brownish-gray and underparts dull whitish or buffy. Length 14.00-16.75; wing 8.00-8.50; bill 2.85-3.45.

RANGE. Breeds from Alaska to Hudson Bay; winters in southern South America.

RANGE IN NORTH CAROLINA. A rare migrant.

As this bird migrates in autumn from Labrador straight down over the Atlantic to South America, it rarely appears on the coast of the United States. Our one evidence of it ever having come to North Carolina is as follows: On September 13, 1911, J. B. Etheridge killed one on Pea Island, and sent it to H. H. Brimley at the State Museum in Raleigh, where its skin is still preserved.

Fig. 58. Hudsonian Godwit.

Genus **PHILOMACHUS** Anonymous.

RUFF.

Philomachus pugnax (Linnaeus). [260]

Description. In summer, the male may be readily identified by the enormous ruff about its neck, and this may be white, yellow, brown, black, or mottled in a dozen ways. In winter its plumage is similar to that of the smaller and demure female. At this time the back is black; the feathers margined with brown, and the inner wing-feathers barred with black and grayish-brown; underparts are whitish. Length 12.50; wing 7.00; bill 1.50.

Range. Europe and Asia.

Range in North Carolina. Of accidental occurrence.

The Ruff inhabits western Europe and northwestern Asia. A wandering female that reached Wake County, North Carolina, in 1892, was shot on May 6, by H. H. Brimley on a Walnut Creek marsh near Raleigh.

On their breeding grounds in spring and early summer, the males gather in flocks of a dozen or more individuals, raise their widespread ruffs, and with every appearance of fierceness, engage in mimic combats. The females, known as "reeves," take no part in these ceremonies. The performances are repeated over and over for many weeks. The birds always dance in the same spot year after year. While obsessed with this spring madness, they seem to lose all consciousness of their surroundings. During these periods of dalliance in open fields in Holland, Pearson has approached to within fifteen feet of the frenzied birds and photographed them repeatedly.

Genus **CROCETHIA** Billberg.

SANDERLING.

Plate 23

Crocethia alba (Pallas). [248]

DESCRIPTION. Summer adult: light rusty above varied with blackish and whitish; head, neck, and chest pale rusty, streaked and speckled with dusky; underparts otherwise white, without markings; winter birds: very pale uniform ash-gray above, slightly streaked with dusky; underparts wholly white without markings. Length 7.00-8.75; wing 4.70-5.00; bill .90-1.05.

RANGE. Nearly cosmopolitan. In America, breeding on the Arctic islands. Winters from Virginia to Patagonia.

RANGE IN NORTH CAROLINA. Visitors to our coast at all seasons.

Like many of our shore birds, the Sanderlings have a whistling flight song while on their northern breeding grounds. They nest on the world's most northern islands, and then spread to virtually all the beaches of Africa, southern United States, South America, and islands of the South Pacific.

Many evidently do not leave our shores to go north in spring, for we have numerous records of their occurrence in May, June, July, and August. Those that remain throughout the summer do not mate and rear young in our State. They are simply nonbreeders. Some may be young of the previous year which have not yet felt the urge to mate, some may have passed the age of productivity or for other reasons have become sterile. As yet we know little of the reasons why many individuals of various shore birds choose to linger here after the great masses of the species have responded to the usual seasonal call of the spring migration instinct. Some pause in their autumn flight and here spend the winter. We have found them in September, October, December, January, and February.

Their plumage is pale, in fact, it is more nearly white than is that of any other beach bird in North Carolina. In small and medium-sized flocks they feed by the seaside, running down after each receding wave, picking briefly here and there in the sand, then quickly scampering back upon the advance of the next oncoming breaker.

☆ We have 31 later records to confirm the above, with one seen inland to Mount Olive (September 21, 1945 and August 12, 1955) and Lake Mattamuskeet (November 6, 1954). ☆

Family **RECURVIROSTRIDAE.** Avocets and Stilts.

A small family with the legs excessively long and the bill very slender, long, and acute. There are only two genera in North America. A single species of each occurs rarely in North Carolina.

Genus **RECURVIROSTRA** Linnaeus.

AVOCET.

Plate 22

Recurvirostra americana Gmelin. [225]

DESCRIPTION. White, except for black on the wings, inner scapulars and adjoining parts of back. The tail is pale ashy; the head, neck, and chest are light cinnamon in summer,

but grayish-white in winter. Length 15.50-18.75; wing 8.50-9.00; culmen about 3.50; tarsus about 3.75.

RANGE. Breeds from Alberta and Manitoba to California and Texas. Winters southward as far as Central America.

RANGE IN NORTH CAROLINA. Occasionally seen on the coast.

Until 1940, this handsome western water bird, with long blue legs and thin, attenuated, upturned bill, had been noted in North Carolina on only three occasions during the previous seventy-one years.

Coues, while stationed with the Fort Macon garrison at Beaufort Inlet, recorded that September 12, 1869, he saw a flock of Avocets. The only other discovery of this bird was a very definite identification made in Dare County, December 15, 1934, when an adult female was taken (Mayr in *The Auk*, 1935, p. 185). Mayr stated that the bird "alighted among a flock of Mallard decoys and for a time fed in between them." It was shot and proved to be very fat. Walker saw Avocets on Pea Island six times in 1940, at dates between August 29 and December 27. Four were the most that were noted in any one day. Grey saw one here June 9, 1941.

Individuals vary much in size. Thus some Avocets have a wingspread of twenty-eight inches, while others have a spread as great as thirty-eight inches.

☆ We add 5 records from Pea Island (November and December) and one from Wilmington (October 16). ☆

Genus **HIMANTOPUS** Brisson.

BLACK-NECKED STILT.

Plate 22

Himantopus mexicanus (Müller). [226]

DESCRIPTION. Mostly black above, a white spot above eye; front of head, front of neck, lower back, rump, and underparts white; female with back brownish instead of black. Length 13.50-15.50; wing 8.50-9.00; bill 2.50; tarsus 4.00.

RANGE. Breeds in western United States, Texas, Louisiana, and southern Florida. Winters from the Gulf Coast states to Peru and Brazil.

RANGE IN NORTH CAROLINA. Of accidental occurrence on the coast.

The red legs of the Black-necked Stilt are extremely long; its eyes are red; its back is black; and the underparts are white. There is no difficulty in identifying this slender bird that walks about on such surprisingly long and slender stilts.

North Carolina is well out of its normal range, but, like all shore birds, it possesses great power of flight, and wanderers may appear in unexpected places.

We know of two having been found in the State—one in summer; the other in winter. Twenty years ago a mounted stilt was on exhibition in the museum of Trinity College, at Durham, North Carolina. S. T. Moyle, of Mount Gilead, who took the specimen, wrote us, "I think it was during June, 1900, I was shooting shore birds on the beach south of Nags Head, Dare County, when I saw this bird with a flock of Yellow-legs. A friend killed it and gave it to me."

Our second record is of December 3, 1925, when an adult male in very fine plumage was killed by Peters, of the Narrows Island Shooting Club in Currituck County, and mounted for the Club's collection (*The Auk*, Vol. 43, p. 234).

☆ More records are from Wilmington (May) and Southport (April). Two adults and four young, (one in downy feathers), were seen on July 28, 1956, at Cape Hatteras, near a small rain-water pond, by Mr. and Mrs. Irwin C. Hoover. This bird in former years nested as far north as New Jersery on the Atlantic Coast. ☆

Family **PHALAROPODIDAE.** Phalaropes.

Phalaropes are sandpipers that get their living as they swim about on the surface of the water. Except in the breeding season they are found in flocks, and may be seen on fresh-water lakes, on salt-water pools near the coast, or out on the ocean hundreds of miles from land.

Their breasts are covered with thick coats of feathers underlaid with down similar to ducks. Two of the species pass the winter in the open seas of the Southern Hemisphere.

With all the phalaropes, the females are not only larger but also are more brightly colored than their mates. In the breeding season, the females select and pursue the males they desire and choose the spot on the ground for the nest. After laying their eggs, the domestic duties of the females cease. The remainder of the summer they associate in groups of their own sex.

The males sit on the nests and hatch the eggs. They take their jobs seriously and are extremely zealous in discharging their household obligations. They defend their nests energetically, even attacking and driving away any of the large, handsome females whose curiosity may cause them to venture too near the spot where the precious eggs repose.

Genus **PHALAROPUS** Brisson.

RED PHALAROPE.

Plate 23

Phalaropus fulicarius (Linnaeus). [222]

DESCRIPTION. Toes webbed at base and with scalloped lobes terminally; bill heavy, wider than deep. Adult female in summer—crown and chin fuscous; cheeks white; back black, the feathers bordered with cream-buff; wings gray; some of the secondaries and tips of greater coverts white; upper tail-coverts rufous; underparts dull, reddish-brown, often with scattered white feathers. Adult male in summer—similar, but smaller, crown striped like back, little or no white in cheeks. Juvenals—similar to adults in winter but upperparts margined with buff, chest washed with buff. Adults and juvenals in winter—top of head and upperparts white; region about eye and back of neck fuscous; back and scapulars dark pearl-gray; wings grayish-fuscous, the coverts and secondaries tipped with white; rump and tail fuscous. Length 8.12; wing 5.37; bill .87; tarsus .82.

REMARKS. The juvenal plumage is worn until October or November. Molting spring birds are strikingly pied below. (Chap. *Birds of E. N. A.*)

RANGE. Breeds from Siberia all across the northern margin of North America; also Iceland and Spitzbergen. In eastern America, migrates along the coast chiefly offshore, and winters mainly in the ocean off South America.

RANGE IN NORTH CAROLINA. Occasional along the coast.

These odd maritime birds may be looked for in the ocean off our coast, but they rarely come near the shore, as in migrations they apparently pass North Carolina far to sea.

We know of six occasions during the past forty-four years when one or more have been identified in this State. On April 2, or 3, 1896, Gerald H. Thayer was shown by the keeper of Cape Lookout Lighthouse about a dozen dead Red Phalaropes that had been killed by the lantern at night. Bishop writes: "Capt. N. E. Gould sent me twelve Red Phalaropes which were collected at Bodie Island, Dare County, six on April 8, and six on April 17, 1907." One was received in the flesh at the State Museum, Raleigh, on February 23, 1909, sent in by M. Leslie Davis, of Beaufort.

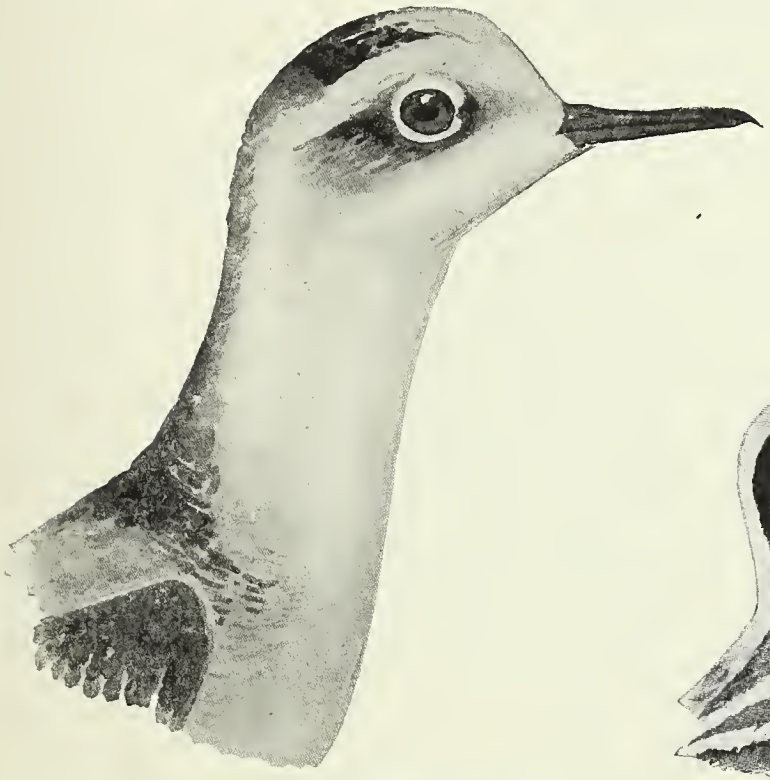


Fig. 59. Red Phalarope (winter plumage).

Fig. 60. Wilson's Phalarope.

At Cape Lookout, on May 29, 1924, Coles examined one of these birds at close range. He wrote: "It was found swimming in a little pond in the marshes and was in process of acquiring summer plumage, the lowerparts mottled with red and white." While driving in Onslow County, near the coast, on March 8, 1934, H. T. Davis picked up one he found fluttering in the road. It died the next day. Walker, the Superintendent of Pea Island National Wildlife Refuge, observed two on May 1 and eight on May 3, 1937. Craighill found one dead at Rocky Mount, November 17, 1939, and sent it to the State Museum.

☆ New records are inland; from Lenoir (January), Smoky Mountain Park (December) and Fontana (October). ☆

Genus **STEGANOPUS** Vieillot.

WILSON'S PHALAROPE.

Plate 23

Steganopus tricolor Vieillot. [224]

DESCRIPTION. Adult female in summer—top of the head and middle of the back pearl-gray, nape white; a black streak passes through eye to side of neck, and, changing to rufous-chestnut, continues down the sides of the back and on scapulars; neck and upper breast washed with pale, brownish-rufous; rest of underparts and upper tail-coverts white. Adult male in summer—upperparts fuscous-brown, bordered with grayish-brown; upper tail-coverts, nape, and a line over the eye white or whitish; sides of the neck and breast washed with rufous; rest of the underparts white. Adults and juvenals in winter—upperparts gray, margined with white; upper tail-coverts white; wings fuscous, their coverts margined with buffy; underparts white. Juvenals—"Top of head, back, and scapulars dusky-blackish, the feathers distinctly bordered with buff; wing-coverts also bordered with pale buff or whitish; upper tail-coverts, superciliary stripe, and lowerparts white, the neck tinged with buff." (Ridgway.) Male, length 8.75; wing 4.75; tarsus 1.20; bill 1.20. Female, length 9.50; wing 5.25; tarsus 1.30; bill 1.30. (Chapman, *Birds of E. N. A.*)

RANGE. Breeds in the far western States and through western and northern Canada. Winters in southern South America.

RANGE IN NORTH CAROLINA. A rare wanderer, discovered thus far only in Currituck County.

The handsome Wilson's Phalarope, with its peculiar webbed and lobed toes, is confined entirely to the Americas. Regarding its occurrence in North Carolina, we are able only to repeat what was stated in the first edition of this book (1919), as we have no evidence of one being seen in the waters of the State since 1911.

A Wilson's Phalarope was collected on the beach opposite Knotts Island, Currituck County, by Lawrence, August 17, 1908. The specimen is preserved in the American Museum of Natural History, New York City. One was taken by Jasper B. White, on Currituck beach, opposite Church's Island, on August 25, 1910. The bird was identified by W. L. McAtee, of the United States Biological Survey. Another was killed by White on Currituck Sound, September 13, 1911. (W. L. McAtee, in letter, October 14, 1911.) Kobbe, in *The Auk* for January, 1912, places on record the following: "Immature in winter plumage were shot near Currituck Light House, North Carolina, by Mr. Whitlock and Mr. Nourse on September 7, September 8 (two), and September 12, 1911. A well-marked female was taken by me September 14. This bird was so tame that it allowed me almost to touch it before it flew away in a zigzag manner. An old gunner at Currituck had never seen these birds before."

☆ An inland record is for May 21, 1896. B. Torrey took the bird at Highlands. ☆

Genus **LOBIPES** Cuvier.

NORTHERN PHALAROPE.

Plate 23

Lobipes lobatus (Linnaeus). [223]

DESCRIPTION. Toes webbed at base and with scalloped lobes terminally; bill very slender and sharply pointed. Adult female in summer—upperparts slaty-gray; back and

scapulars edged with ochraceous-buff; sides and front of the neck rufous, more or less mixed with slaty-gray; rest of underparts white. Adult male in summer—similar, but upperparts black, and with more ochraceous; sides and front of the neck mixed with fuscous. Adults in winter and juvenals—upperparts grayish, more or less mixed with white, tips of greater wing-coverts and sometimes part of the secondaries white, occasionally (in adults) with traces of rufous on the sides of the neck; underparts white, more or less mottled with grayish on the breast. Juvenals—upperparts black, edged with straw-color; forehead white; underparts white, chest sometimes lightly washed with buffy. Length 7.75; wing 4.50; tarsus .80, bill .85. (Chapman, *Birds of E. N. A.*)

RANGE. Nearly cosmopolitan, breeding in the northern regions. In North America they breed over much of Canada and Alaska. They migrate on the ocean of both sides of the United States, as well as through the interior. May winter as far south as Patagonia.

RANGE IN NORTH CAROLINA. Rare transient along coast.

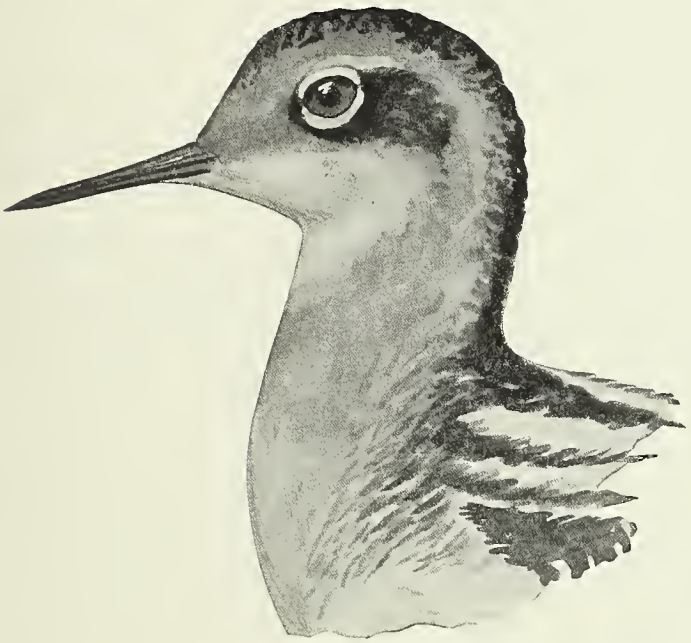


Fig. 61. Northern Phalarope.

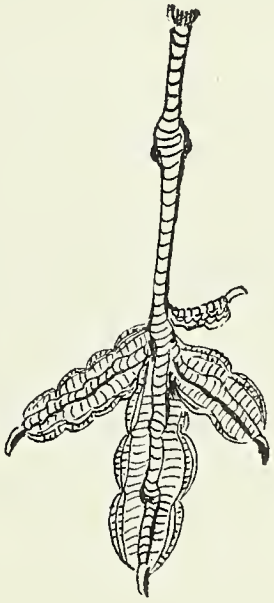


Fig. 62. Foot of Northern Pahlarope.

C. J. Maynard, in *Birds of Eastern North America,* published in 1881, refers to seeing Northern Phalaropes along the coast of "the Carolinas," and says they are most common in the ocean just off Pamlico Sound. Their actual capture, however, appears not to have been effected until September 23, 1909, when H. H. Brimley found a company of five on White Lake in Bladen County and shot three of them. They were feeding on the water late in the evening of two consecutive days, and he was able to approach in a boat within fifteen yards of them. He describes them as most peculiar in their actions, darting about on the surface more like insects than birds. Other records of this species are: On Pea Island, Grey and Walker noted them in May of 1937, '38, '40, and '41, dates from May 4 to 31, and on September 16, 1940, not more than three being seen at one time; one seen by R. H. Pough February 5, 1940, on water north of Hatteras. These phalaropes, like most shore birds, are believed to migrate primarily at night and often fly in flocks containing thousands of idividuals.

☆ Added records are for Pea Island, on May 24, 1944, and Rocky Mount, May 27, 1955. ☆

Family **STERCORARIIDAE.** Jaegers and Skuas.

These are predaceous gull-like birds, having the bills hooked at the tip and the base covered with a skin-like cere. Their claws are sharply curved. The plumage is, in general, darker than that of gulls, and in the jaegers the central tail-feathers are longer than the outer ones. Their manner of flight is hawk-like. Of the two genera composing the family in the Western Hemisphere, one (*Stercorarius*) contains three species, two of which are known to appear in the coastal waters of the State.

Genus **STERCORARIUS** Brisson.

POMARINE JAEGER.

Plate 4

Stercorarius pomarinus (Temminck). [36]

DESCRIPTION. Occurs in three phases of plumage—dark, light, and intermediate. In the dark phase it is entirely sooty-slate in the light phase the dark color is restricted to the top and sides of head and the upperparts generally, the rest of the feathers being white. The immature birds are less well-marked and have the underparts more or less cross-barred. There is great variation in the colors of these birds. In all plumages, it is distinguished from the other jaegers by its large size and longer bill. Length 20.00-23.00; wing 13.50-14.00; tail, including the long middle feathers, 8.00-9.00.

RANGE. Circumpolar, breeding in Greenland and other Arctic islands. In winter, off the coast of Virginia and southward.

RANGE IN NORTH CAROLINA. At sea, well off the coast in autumn, spring, and perhaps winter.

This, the largest of the jaegers, was established as a North Carolina bird by the capture of one in the dark plumage at Ocracoke on October 19, 1933. T. G. Empie sent it to H. H. Brimley, and its skin is preserved in the State museum. When killed, it was feeding on the body of a Ring-billed Gull. It had been wounded in the breast and was much emaciated.

On September 30, 1937, Grey and Craighill saw one chasing a Ring-billed Gull at Oregon Inlet. Another record is the not very satisfactory statement published by Bent, that one was seen at "Cape Hatteras, April 18." No year was given nor was the observer named.

All the jaegers are strong-flying predaceous birds, roaming the limitless expanses of the ocean where they get their living in part by robbing other sea birds of their food. Along the coast, or when on their inland breeding grounds, they frequently destroy the eggs and young of other species, and even kill small mammals.

☆ One new record (4) was off Cape Lookout (May 2), and another off Cape Hatteras (January 3). ☆

The Long-tailed Jaeger (S. *longicaudus*, Vieillot), Plate 4, undoubtedly occurs off our coast in migration. It breeds in the Arctic and has been recorded in December off the South Carolina coast. One noticeable characteristic of this bird is its extremely long tail, the central feathers of which, in the adult, extend some eight inches beyond the others.

PARASITIC JAEGER.

Plate 4

Stercorarius parasiticus (Linnaeus). [37]

Description. This Jaeger also has its dark and light phases of plumage. In one, the feathers are slaty-black; in the other, the underparts are white, the white extending all around the neck. The slender, pointed tail-feathers are about four inches longer than the others. Immature birds are duller and considerably mottled. Length 15.50-21.00, the difference in individuals being due to the varying length of the middle tail-feathers. Wing 11.75-13.50; tail 5.00-6.25.

Range. Arctic regions of Northern Hemisphere. Winters chiefly south of the Equator.

Range in North Carolina. A migrant, very rare.

In summer, Parasitic Jaegers are a fearful scourge to the wild ducks and geese that breed on the bleak Arctic prairies. On tireless wings they beat back and forth, searching the ground for the nests of these waterfowl. Eggs and newly hatched young are consumed wherever found, as also are such small mammals, as mice and lemmings. Terns are chased and forced to disgorge the food they recently have eaten, and injured or disabled birds are dispatched and torn to pieces by the jaeger's sharply hooked beak.

We have but one definite record of a Parasitic Jaeger in North Carolina. It was shot near Cape Lookout by A. Piner, of Morehead City, in the autumn of 1897, who skinned the unknown bird. Pearson, finding the specimen in Piner's possession, bought it and sent it to H. H. Brimley for the State Museum.

☆ We add four records: Nags Head, September 18 and 19, 1950 and October 17, 1954; Oregon Inlet, September 23, 1950. ☆

The Northern Skua (*Catharacta skua*) is a sea bird breeding near the mouth of Davis Strait, Baffin Island, and the Shetland Islands, and wintering on the Grand Banks and casually south to New York. Rarely it doubtless comes as far as North Carolina. To the present time we have no knowledge of it reaching our coastal waters, but it is a species for which ornithological students may well keep a sharp lookout.

On February 5, 1940, Richard H. Pough, while on a ship bound north along the Atlantic Coast, observed a skua at a point which he judged to be just beyond the North Carolina State line. This is a fierce sea pirate among birds. Its dominant color is *brown* with some light patches showing on the wings. It is a stocky, strongly built bird not quite the size of a Herring Gull, from which it can easily take its food at pleasure. In fact, not even the Great Black-backed Gull can resist the onslaught of the skua when this bully of the sea comes to rob it of its prey.

Family **LARIDAE.** Gulls and Terns.

This is a large family of water birds with long wings, webbed feet and, as a rule, with white underparts and with a pearlish or blackish colored mantle covering back and wings. With all species the flight is graceful and buoyant. Their appearance is very attractive as they dip or wheel and circle in the air. At least one member of the group is found in almost every region of the world. More than one hundred species are known, of which eight gulls and ten terns inhabit, at some time of the year, the sounds of North Carolina or the adjacent waters of the sea.

Sub-family **LARINAE.** Gulls.

Genus **LARUS** Linnaeus.

GLAUCOUS GULL.

Plate 24

Larus hyperboreus Gunnerus. [42]

DESCRIPTION. Adult in winter: white and light pearl gray wings; head and neck lightly streaked with gray. Immature in winter: above feathers usually barred, mottled or streaked with gray or buffy; tail ashy or brownish, below dirty-white, sometimes mottled. Average length 28.00; wing 17.10; spread 60.00; bill 2.35.

RANGE. Summers in Arctic territories from Alaska to northern Greenland and Labrador. In winter, southward regularly to New York.

RANGE IN NORTH CAROLINA. Rare winter visitor.

Whalers and sealers of the far North know this bird as the "Burgomaster." Its large size and ferocious habits make it the terror of other birds of the frigid seas, for it eats the young of many species and unhesitatingly will swallow whole, birds as large as adult Golden Plovers. It robs the Razor-billed Auk of its prey and sometimes even kills and eats an auk. Like most gulls, it also is a scavenger of the ocean and the adjacent coast lines.

So far as we know, the Glaucous Gull has been reported in North Carolina but seven times. Gerald H. Thayer found one at Morehead City, Carteret County, March 30 or 31, 1895 (*The Auk*, 1902, p. 285); Col. Wirt Robinson at Fort Caswell, near Southport, reported in a letter that one of his men killed a Glaucous Gull near that point, February 19, 1904; one shot at Southport, March 26, 1935, was sent in the flesh to the State Museum; and Walker reported seeing one at Pea Island, February 18, 1938. In the spring of 1941, three others were noted on the coast. One of these was found by Walker at Bodie Island on March 7, and the same day Thomas Odum saw another near Beaufort. Grey reported one in second year plumage at Pea Island, May 28, 1941.

ICELAND GULL.

Plate 24

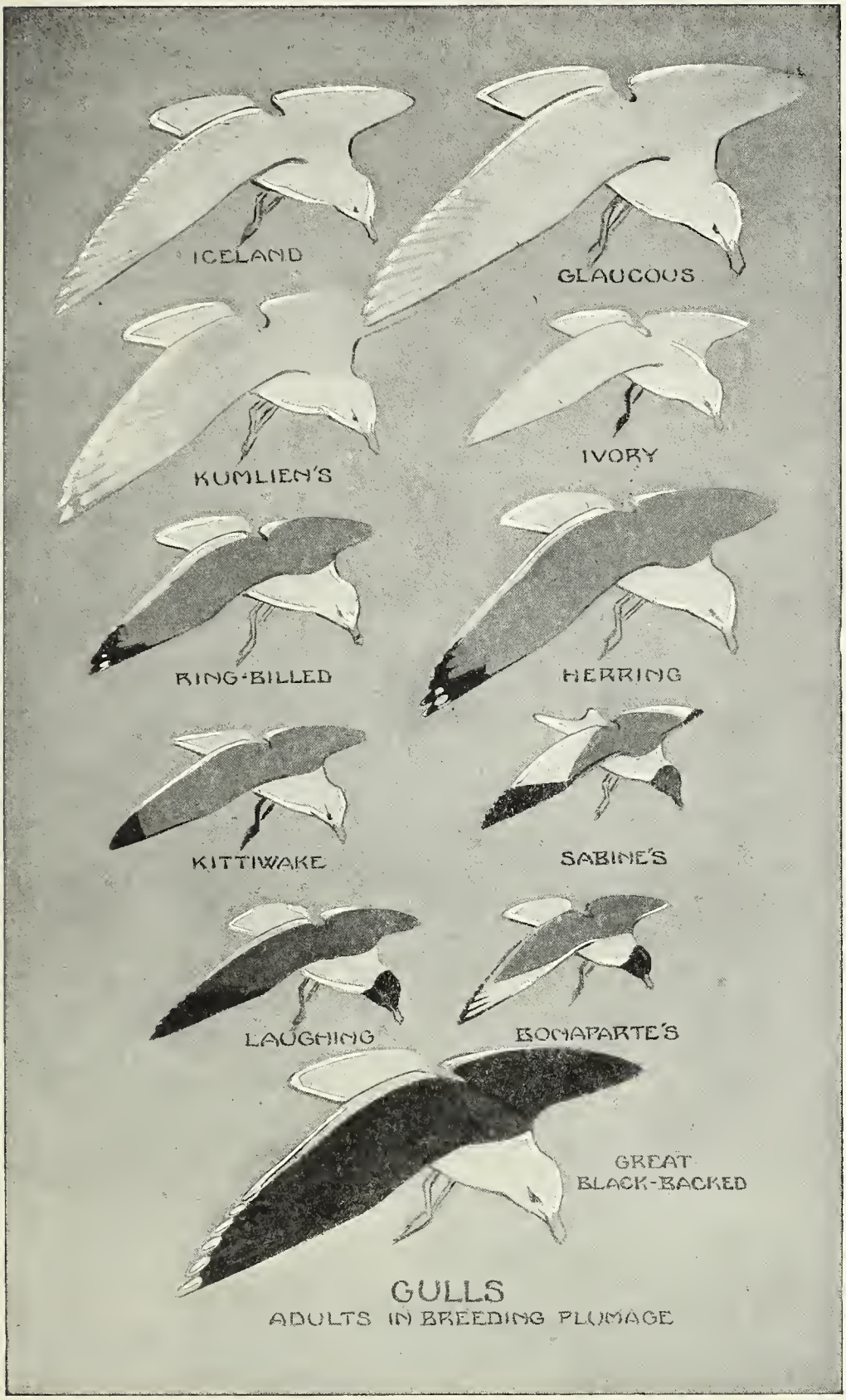
Larus glaucoides Vieillot. [43]

DESCRIPTION. Plumage like that of the Glaucous Gull, but the bird is much smaller in all its measurements. Length 23.00-25.00; wing 15.40 to 16.50; tail 6.00 to 6.70; bill 1.60 to 1.70.

RANGE. Breeds from central Greenland northward; winters from Greenland southward to northern New Jersey and the Great Lakes.

RANGE IN NORTH CAROLINA. One recorded in winter.

This smaller edition of the Glaucous Gull, from which at a little distance it is difficult to distinguish, finds a place in our list by virtue of a specimen having come under the observation of W. T. Helmuth on February 24, 1918, off the coast of North Carolina. It followed the ship on which he was a passenger, from the region of Cape Lookout to a point off Cape Fear. The distance from shore was about ninety miles (*The Auk*, April, 1920, p. 251).



Courtesy of Roger Tory Peterson

GREAT BLACK-BACKED GULL.

Plates 24 and 25

Larus marinus Linnaeus. [47]

DESCRIPTION. Adults with back and wings slaty-black; the head and underparts white, the former streaked with gray in winter. Immature birds with back and wings brownish, more or less streaked and mottled with buff; head, neck, and underparts whitish, more or less streaked and mottled with gray. Length 28.00-31.00; wing 17.50-19.50; tail 7.50-8.50.

RANGE. Breeds in northern Europe, Asia, and in North America from Massachusetts to Greenland; winters from Greenland southward to North Carolina and probably farther south.

RANGE IN NORTH CAROLINA. Regular and not uncommon winter visitor on the coast; some in immature plumage remain through the summer.

Our earliest record of the appearance of this bird in North Carolina waters was February 15, 1901, when, according to Bishop (*The Auk,* 1901, p. 26), one was observed by C. R. Hooker near Pea Island. During the next thirty-two years only three additional records were made. They were as follows: H. H. Brimley saw one at Hatteras Inlet, February 26, 1906; he received another at the State Museum taken by J. B. Etheridge at Pea Island, April 2, 1907; and one was noted by Metcalf on Neuse River, at New Bern, early in March, 1911. It, therefore, was long regarded as a rare bird in this State.

It was not known to breed south of Nova Scotia until the summer of 1931, when a sudden migration of breeding "Saddle-backs" took place. They appeared that year along the coast of Maine and built their nests of grass and seaweed on many of the rocky islands. Ever since then their numbers have been augmented annually. This extension of the breeding range doubtless accounts for the increase of the species in North Carolina during recent winters.

Beginning with 1933, Great Black-backed Gulls have become more common in this State and numerous observations of their presence have been recorded by reliable field men, such as Cottam, Burleigh, E. L. Green, Jr., Walker, Etheridge, and others. Our earliest record in autumn is October 29 (1930), and adults may be looked for until June. Two specimens in immature plumage were seen by Pearson and Walker on Pea Island Refuge, June 21, 1939, and the next day three were noted near Killdevil Hills.

Pearson, who has visited many islands where the Black-backed Gulls have their summer abodes, says that an island in Lake George, Nova Scotia, is the only place he has found them breeding in a compact colony.

In Maine and the Cape Breton Island region often only a single pair of nesting Black-backs occupies an island or exposed rocky ledge. On an island half a mile long, four or five nests situated at wide intervals may be found. These birds are destroying thousands of Eider Duck eggs every year, and they pick up and swallow every unprotected young duck or tern they can discover. On the island of Skokholm, off the coast of Wales, Pearson, on July 18, 1934, examined the remains of perhaps a hundred shearwaters and some auks that had been killed and eaten by these fierce fliers of the northern seas.

☆ New records are 15; from Pea Island (October and December), Cape Hatteras (August-September), Ocracoke (August), Morehead

City (August and November) and Wilmington (December, July, and February). ☆

HERRING GULL.

Plates 24 and 25

Larus argentatus smithsonianus Coues. [51a]

DESCRIPTION. Adults with back and wings deep pearl gray; head, neck, and underparts white, the former streaked with gray in winter. Immature birds: mostly ashy-fuscous above and below more or less mottled or streaked with paler; tail black during first winter. Length 22.50-26.00; wing 16.25-17.50; expanse of wings 54.00 to 58.00; tail about 7.50.

RANGE. Breeding in central and northern North America and on the coast from New York to the Arctic Sea; winters from Canada to Yucatan.

RANGE IN NORTH CAROLINA. Coastal region in winter, rare inland. Immature birds often seen in summer; adults also are occasionally found at this season.

Fig. 63. Kaiser, the Oldest Herring Gull Known to Science.

Photographed by T. G. Pearson, at Morehead City, N. C., November 23, 1934.

The lower mandible of the Herring Gull is adorned with a red spot near the end, but this is not acquired until the bird is four years of age. We see this species commonly in winter along the coast, flying up the rivers, feeding about wharves, and following the coastwise ships at sea. Hungrily it searches for dead fish washed ashore by the tides, gathers with its companions about city dumps, and gleans from the waters of sound and ocean scraps of food thrown overboard from vessels. It is our most common large winter gull. When in dark gray plumage, it is a young bird; when in white plumage, it is an adult. Most of those seen after June 1 are the dark, immature birds, some of which may be seen throughout the summer.

A Herring Gull which lived longer than any other member of its tribe has ever been known to exist, was one that was wounded and kept in an enclosure the rest of its life by Captain John E. Lewis, of Morehead City. When it died,

on July 8, 1935, it had attained an age of not less than forty-nine years. While in captivity it mated with another captive gull and young were raised to maturity. These were the only eggs of a Herring Gull that have ever been known to have been laid south of Long Island, New York. An account of its life and death may be found in *Bird-Lore,* 1935, pp. 412-413.

These large gulls are occasionally seen inland at Raleigh, Durham, Rocky Mount, Montreat, and elsewhere. Usually they come in small groups, but sometimes large numbers are seen. On a lake at Chapel Hill a flock of 200 appeared on April 16, 1934. The birds begin to arrive along the coast in numbers about the first of November, and in May most of them depart for their feeding grounds on islands washed by the northern seas or situated in large inland lakes.

☆ Large numbers—up to an estimated 13,000—continue to be prominent along our coast from December to May. Inland records in the same season are from Rocky Mount, Raleigh, Greensboro, Salisbury and Harnett County. ☆

RING-BILLED GULL.

Plates 24 and 25

Larus delawarensis Ord. [54]

DESCRIPTION. *Adults in summer.*—Back and wings pearl-gray; first primary black, with a white spot near tip, base of inner half of inner web pearl-gray; second primary black, basal half of inner web pearl gray; on the third to sixth primaries the black decreases rapidly, and each one is tipped with white; rest of plumage pure white; bill greenish yellow with a black band in front of the nostril. *Adults in winter.*—Similar to above, but head and nape streaked with grayish. *Immature.*—Upperparts varying from ashy fuscous margined with whitish, to pearl-gray, the feathers more or less mottled, spotted, or, on head and neck, streaked with ashy fuscous; outer primaries black, tail varying from pearl-gray, more or less mottled with blackish, to white, and *crossed near end by a wide band of black;* basal half of bill yellowish, end black, feet greenish. Length 18.50; wing 14.00; tail 6.00; bill 1.60. (Chapman's *Handbook of B. of E. N. A.*)

RANGE. Breeding in the interior from northern United States northward; winters south to Cuba.

RANGE IN NORTH CAROLINA. Common in coastal region during the colder months; occasional inland.

With us, the Ring-billed Gull is about as often seen as the Herring Gull, but unless one is close enough to see the black ring on the bill, it usually is difficult to distinguish between the adults of the two species. If both are seen close enough together to determine their relative sizes, remember that the Ring-bill is the smaller of the two and that the grayish-brown, mottled immature has a black band near the end of the tail.

On its breeding grounds, this gull is an avid destroyer of insects, but in winter it follows ships for scraps, feeds along the beaches, and comes about the wharves often in company with its slightly larger kinsman, the Herring Gull.

Although it is a common visitor in the State only from early autumn until late spring, some individuals may be seen throughout the summer. As examples of this fact, Bishop found them at Pea Island from April 27 to May 15 (1906), and July 23 to August 20 (1904); Brown saw some at Beaufort, June 15 and 16, 1929; A. J. Duvall reported "small numbers along the ocean beach between the Virginia

State line and Oregon Inlet, May 31 to June 2, 1936." In 1939, Grey took one near Lockwood's Folly, Brunswick County, June 9; H. H. Brimley, Pearson, and Walker found some in Dare and Hyde Counties, June 18-21, 1939.

Occasionally the Ring-billed Gull is found inland as indicated by the following records: Cairns shot a pair in Buncombe County in November, 1889. One was killed by an automobile near Raleigh, November 21, 1932; and Craighill reported one at Rocky Mount, October 23, 1937.

☆ Numbers—up to 3600—continue coastwise in winter. Summer records are for Smiths Island (June 9), Beaufort (August 29), and Bogue Banks (August 1-21). New inland records are for Raleigh (March and April), Greensboro (April, May, and December), Salisbury (December), Davidson County (July-August), Catawba County (May 15), and Rocky Mount (January, March, and November). ☆

LAUGHING GULL.

Plates 24 and 25

Larus atricilla Linnaeus. [58]

Description. Adults in summer: whole head sooty-slate color; wings and back pearl gray; tail white. In winter, head white; mantle plumbeous-slate; lower neck, underparts, rump, and tail white; bill red. Immature birds: brownish-gray, feathers margined with white; primaries black, upper tail-coverts and belly whitish; base of tail gray, black towards end with white at tip. Length 15.00-17.00; wing 13.00; spread 41.00; tail 5.00.

Range. Breeds from Maine along Atlantic and Gulf coasts to Mexico, also in Venezuela and West Indies. Winters from North Carolina (sparingly) to Brazil.

Range in North Carolina. Common in summer along the coast; rare in winter.

This most attractive bird adds to one's interest in traveling along our coast line. The pearl gray back and wings of the adult, together with black head and snowy-white throat, underparts, and tail combine to make a most pleasing spectacle, as, with its companions, it circles and dips about our harbors, inlets, and along the beaches. Years ago, it was nearly exterminated by the millinery feather trade, and at the turn of the nineteenth century was not known to breed in the State. In the summer of 1903, State Audubon Society wardens began guarding the sea birds, but it was not until 1905 that Laughing Gulls again nested on our coast. Apparently eighteen young were raised that year. By 1907, the local population was augmented by immigrants perhaps from Virginia. A group colonized in Carteret County, but, according to Joseph Mason, the Audubon warden, violent storms killed virtually all the young, numbering about 160. The next summer, however, some 750 young were able to take wing. Since that time, the species has been a common summer resident.

In 1939, Pearson and others found these birds frequenting the coastal waters from South Carolina to Virginia, but the breeding colonies visited were all on small islands in Cedar Island Bay and in Pamlico Sound. Many nests with eggs and some young were found on Cedar Island Lumps, Outer Swan Island, Flouders Slough Rock, Castle Rock, and Long Rock, which were visited by H. H. Brimley and Pearson, June 17 and 18. On three grassy islands near New Inlet and on a similar island near Oregon Inlet, Pearson and Walker, on June 21,

found hundreds of them nesting in the long grass and among the low bushes. Perhaps 15,000 Laughing Gulls bred in North Carolina in the summer of 1939.

Laughing Gulls may be found in the State any time of the year. Occasionally one is seen inland. An immature bird was killed near Raleigh, November 16, 1932, and another was seen there by Grey on November 27, 1937. Craighill has reported the species at Rocky Mount, April 6 and 8, 1936, and again on October 10, 1938. Murray reported seeing an immature at Blowing Rock, August 18 and 19, 1935.

☆ New coastal records show this bird abundant during the breeding season, with grassy island colonies of as many as 200 nests. Six winter records are for Lake Mattamuskeet, Southport and Wilmington. Three inland records are for Rocky Mount (October). ☆

☆ FRANKLIN'S GULL.

Larus pipixcan Wagler. [59]

DESCRIPTION. Resembles both Bonaparte's and Laughing Gulls. In summer the head and throat is sooty black, with nape, sides of neck and underparts white, tinted slightly with pink; tail white, with back and wings pearl-gray; with reddish bill. A distinctive mark is a black patch on the white area near the tip of the spread wing. Winter plumage of adult is similar except head and neck are white with grayish occiput and auricular regions; feet dusky, bill dusky except the reddish orange tip. Immatures are darker about eye and nape, and have white tips beyond the dark wing patches.

RANGE. Breeds from Saskatchewan and Manitoba to South Dakota, Minnesota, Iowa, and Utah; winters from coastal Texas and Louisiana southward to Peru and Chile; accidental in Ontario, Virginia, and Lesser Antilles.

RANGE IN NORTH CAROLINA. Accidental.

This gull is different in that it nests in interior North America and is rarely seen on either coast. Nesting colonies are found in rushes, bordering fresh water lakes. They gather in large flocks for migration. In the prairie areas they feed on insects and are known to follow the plow. Farmers fondly call them "Prairie doves".

Our one record of this gull is one which was crippled and taken on the Catawba river near Charlotte, and turned over to Rhett Chamberlain on October 12, 1952. This specimen, a female, was made into a skin for the State Museum. Allen Duvall, U. S. National Museum, examined the skin and confirmed the identification. ☆

BONAPARTE'S GULL.

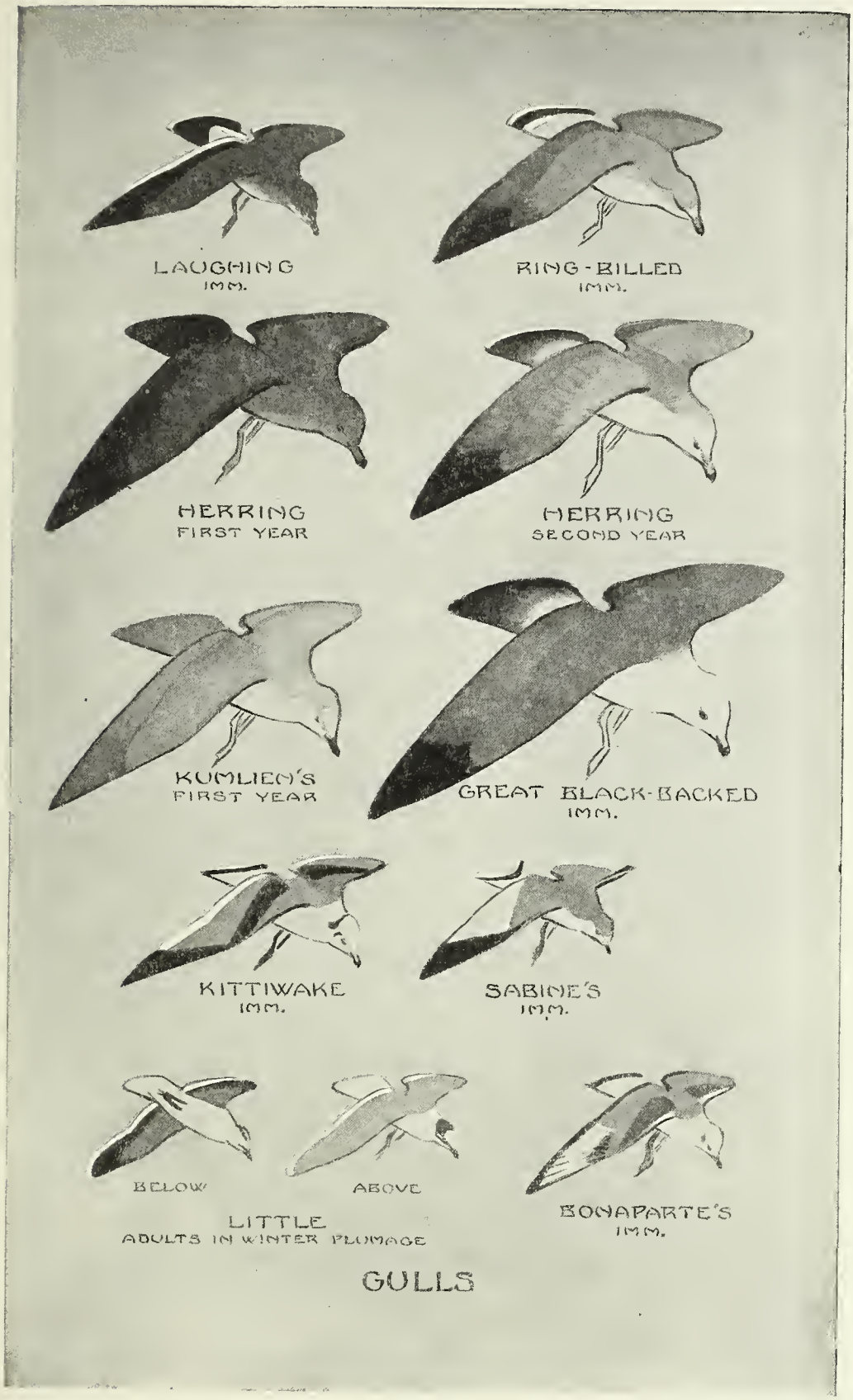
Plates 24 and 25

Larus philadelphia (Ord). [60]

DESCRIPTION. Very similar to the Laughing Gull in its various phases, but smaller, and the back in adults is lighter colored; legs and feet red; bill black. Immature birds and adults in winter show grayish washings on head and neck, dark spot in auricular region. Length 14.00; wing 10.30; tail 4.00; bill 1.15.

RANGE. Breeds in the interior of western and northwestern Canada and Alaska; winters from Maine to Florida, and on the Pacific Coast to Lower California.

RANGE IN NORTH CAROLINA. Coastal region, except in breeding season. Occasional inland.



Courtesy of Roger Tory Peterson

The smallest and most dainty gull to appear on our coast is Bonaparte's. On the water it floats with marked buoyancy, and in the air flies lightly with the careless grace of a tern. In the far Northwest, where in summer its nests are placed on trees and stumps, it flies and dips over the neighboring muskeg swamps or prairies, capturing insects on the wing. When after the breeding season it comes eastward to the salt waters, its food changes to minnows with occasionally a crustacean or a marine worm. It is easy to get it to come about wharves in Florida by offering crackers and scraps of bread.

Sometimes the Bonaparte appears on inland lakes. Such a specimen was taken by B. M. Moore in Franklin County in December, 1889. Other interior records have been made by Pearson at Greensboro, March 20, 1904; Odum at Chapel Hill, November 13, 1932; and Craighill at Rocky Mount, October 20 and 25, 1937. Many have noted it along the coast. E. L. Green, Jr., reported flocks of sixty or more, at Cape Hatteras (1936-37) from September 9 to March 24. Walker, at Pea Island, has seen the bird as late in spring as April 21 (1938). Burleigh has noted it near Asheville in March, April, and December.

☆ We have the expected (21) coastal records for cold weather. Later records are for Wilmington (April and May) and Ocracoke (August). We add 5 inland records, as far west as Davidson County (August 8). ☆

Genus **RISSA** Stephens.

ATLANTIC KITTIWAKE.

Plates 24 and 25

Rissa tridactyla tridactyla (Linnaeus). [40]

DESCRIPTION. Adult in summer: plumage white except back and wings, which are pearl gray; end of wing and outer web of first primary black; no nail on hind toe; feet and legs black; bill yellowish. Adult in winter: similar but with dark spot above eye, and a little pearl gray on head and back of neck. Immature much like winter adults, but with dark bar on back of neck; bill black; feet yellowish. Length 16.00; wing 12.00; expanse of wings, 3 feet.

RANGE. Breeds from the Arctic islands south to France and the Gulf of St. Lawrence. In North American waters spends winter from Gulf of St. Lawrence to New Jersey, and casually southward.

RANGE IN NORTH CAROLINA. Known only by one specimen.

The Kittiwake is distinctly a bird of the open sea.

. . . . . .

It feeds on small fishes that now and then are driven to the surface to escape enemies from beneath. Also it takes various little crustaceans and on the Grand Banks gathers about the fishing fleet where it watches for fragments thrown overboard when the fishermen are cleaning their catch.

On rocky cliffs of islands in the far North, the Kittiwakes gather to breed. Pearson, who has visited their haunts, says he found them associated with breeding murres, eiders, puffins, shags, and the great wheeling white gannets.

This species has been known to be of accidental occurrence in Virginia and Florida and we have long been expecting it to appear as a wanderer in North Carolina. Now we have that first record. On February 5, 1940, Richard H.

Pough identified an immature Kittiwake off Cape Hatteras. (*The Chat*, May-June, 1940, p. 49.)

☆ Another record is for 3 seen off Kitty Hawk, Dare County, (December 27, 1952). ☆

Subfamily **STERNINAE.** Terns.

Of the terns, often called "strikers," ten species have been identified in this State. They are classified as representing five genera. Their status as a group, both formerly and at the present time, seem worthy of special mention.

Over a period of some twenty-five years there was a steady demand in the millinery markets of New York for the skins of terns. As a result, these graceful birds were shot about the sea islands where they colonized to rear their young. The slaughter was so extensive that the time came when it did not pay to pursue them further, and the plume hunters had to turn to other occupations for a livelihood. North Carolina, in common with other States, suffered a vast loss in its sea bird life.

One of the many men who engaged in this business was Augustine Piner, of Morehead City. In the summer of 1899, he told Pearson about some of his experiences. Piner mentioned killing 175 egrets and 110 Snowy Egrets at a breeding colony near Little River in 1882. He stated that with two assistants he shot terns for several summers, the work keeping them moving along the coast in their sailing sharpie from April 15 to about July 25. In the year 1881, he and his men killed and skinned 11,000 terns. In 1882, they took about 9,000; the next year the kill sank to 4,000; and in 1884, the birds had become so reduced they were able to gather only 650 skins. He stated that two-thirds of his skin collecting took place in North Carolina waters.

It should be borne in mind that in those days there was not a law in the United States protecting these birds; that public sentiment was still asleep on the subject; and that virtually every woman who could afford to buy birds' feathers adorned her hat with some of them. Men along the coast shot the birds for their feathers with the same eagerness and freedom that they tonged oysters or netted fish.

When the State Audubon Law was enacted by the Legislature on March 6, 1903, the condition of the terns and allied species in North Carolina was indeed deplorable. The first wardens the State Audubon Society appointed were assigned to the duty of guarding the few islands and sand spits, where the remnant of our long-winged sea birds were attempting to breed. Such action was necessary if this wildlife group was again to populate our waters and beaches. The great killing for the millinery trade was always carried on while the birds were congregated on their breeding islands. When they were shot, the young, of course, were left to starve, as without parental attention food was no longer available. The birds were still being shot on occasions, and their eggs were often gathered for food or were wantonly broken by landing parties from fishing or pleasure boats.

The beautiful Least Tern was so nearly extirpated that during five trips to the coast country within the six years preceding 1903, Pearson saw only six specimens.

However, a few appeared at the guarded islands that summer and laid ten or twelve eggs. They increased so rapidly under protection that in the summer of 1906 about 700 young were believed to have been raised. Today there are many thousands of these dainty "little strikers" or "sea swallows," adding life and beauty to our coastal regions. Other species, especially Common Terns, Royal Terns, and Black Skimmers, during the same period, also showed a marked recovery.

At such a rate of increase one might expect the population of these feathered creatures to have grown to hundreds of thousands during the thirty years that have since elapsed. Yet this has not been the case, partly because the flat islands and low beaches where the birds colonize are frequently swept by storm tides that destroy both eggs and young. Some instances of these happenings will be mentioned under the discussion of the species affected. However, we now have great numbers of terns, and their annual struggle to reproduce their kind ever continues in the face of the destructive forces of winds and tides.

Genus **GELOCHELIDON** Brehm.

GULL-BILLED TERN.

Plate 26

Gelochelidon nilotica aranea (Wilson). [63]

DESCRIPTION. Adults with top of head and nape deep black, in summer; these parts white in winter, with the ear-coverts and a spot in front of eye gray. Back and wings pale pearl-gray; tail and underparts white; bill and feet black; tail only slightly forked. Length 13.00-15.00; wing 11.75-12.25; tail about 5.50, forked for about 1.65.

RANGE. Breeds in places along the coast from Virginia to Georgia, and from Mississippi to Texas. Also in the Bahamas, Cuba, and to northern Brazil. Winters from the Gulf Coast to Patagonia.

RANGE IN NORTH CAROLINA. Scarce on our coast in summer; breeds sparingly.

This bird gets its name from its gull-like bill, which is thicker in proportion to its length than is that of other North American terns. It feeds upon minnows, fragments of shrimp, and other small articles of food secured by plunging into the water, or by picking them from the surface. Unlike the gull, it is not known to feast on dead fishes washed upon the shores. However, like all gulls and terns, it continually gathers to rest on the sun-lit sands. In common with others of its family, it seeks dry areas of sand and shells to lay its eggs and rear its young.

The Gull-billed Tern is not a very abundant bird anywhere, and in North Carolina it has been recorded but seldom. In 1909, Philipp saw four in Pamlico Sound, June 25, and the next day found two at the Miller Lump near Buxton; Cottam discovered two pairs breeding in a Black Skimmer colony on Ocracoke Island, June 25, 1933.

Burleigh reported from Kitty Hawk, "Single birds were seen at frequent intervals, feeding with the other terns" (August 16 to 24, 1934). In 1938, Craighill and Walker counted twenty nests and fifty birds on Pea Island, May 30 to June 4; Pearson and Walker noted some here June 21, 1939; and on June 7, 1939, Pearson found three on Bald Beach, in Brunswick County.

☆ We add 11 records as follows: Lake Mattamuskeet (December 6 and 21), Nags Head (September 17 and 23), Beaufort region (June, July, and August), Pea Island, nesting birds (June and July), and Southport (June). Young were banded at Pea Island and Bogue Banks in July. ☆

Genus **STERNA** Linnaeus.

FORSTER'S TERN.

Plate 26

Sterna fosteri Nuttall. [69]

DESCRIPTION. Adults: pearl gray above, pure white beneath; top of head and nape black in summer; tail light pearl gray, the outer web of the outer tail-feather entirely white, inner web with dusky towards the end. In winter, head white with a dusky streak surrounding eyes and extending back on ear-coverts. Immature birds: without black on head, and upperparts washed with umber-brown. Length 14.00-15.00; wing 9.50-10.25; tail 5.00-7.70, forked for 2.30-5.00.

RANGE. Breeds in the interior from Minnesota and Nebraska westward, also on the coast of Virginia, Louisiana, and Texas. Winters from South Carolina to Central America.

RANGE IN NORTH CAROLINA. Known to occur only as a rare autumn migrant.

The Forster's Tern, which according to Coues was common about Beaufort Harbor in autumn, and even in winter, seventy years ago, is today apparently one of the rarest of our terns.

In addition to Coues' report from Fort Macon (1871), we know of only four authoritative occurrences in North Carolina. Bishop said that at Pea Island some migrants were found from July 23 to August 20, 1904; Burleigh wrote (*The Auk*, 1937, p. 455): "Small flocks seen daily, August 17 to 26, 1934." His observations were made on the Albemarle Sound side of the "Banks" at Kitty Hawk. Craighill reports one taken at Rocky Mount, August 27, 1937. Grey reported seeing them, August 6, 7, 8, and 13, 1941, at Pea Island.

A few may possibly breed in the State. Their nesting habits, at least sometimes, apparently are different from those of other terns, as may be indicated by the following statement. At Cobbs Island, Virginia, Pearson (July, 1892) found them occupying nests of grass, constructed in the salt marsh in association with a breeding colony of Laughing Gulls. While visiting a Caspian Tern colony on a Mud Lump off the Pass á Loutre mouth of the Mississippi River, in June, 1918, he found a little group of breeding Forster's Terns whose nests were on the bare, baked, and cracked mud. They consisted of slight hollows lined with bits of dried vegetation.

☆ We add coastal records from Pea Island (July 8), Cape Hatteras (August 28-September 4), Lake Mattamuskeet (November 27), and Wilmington (December and April). The latter repeated for a period of six years, and up to 151 in number. Inland, 5 were seen at Rocky Mount (October 8), and one was seen in Henderson County (July 14-19). ☆

COMMON TERN.

Plate 26

Sterna hirundo hirundo Linnaeus. [70]

DESCRIPTION. Top of head and nape black; back and wings pearl gray; throat, rump, and most of tail white, the outer web of the outer feather of the tail gray or pearl gray; breast and belly pale pearl gray; winter birds with black of head confined to the posterior part and the underparts white; bill red tipped with black. Immature birds: similar to winter birds, but duller, and tail much shorter. Length 13.00-16.00; wing 9.75-11.75; tail 5.00-7.00, forked for about 2.50-4.50.

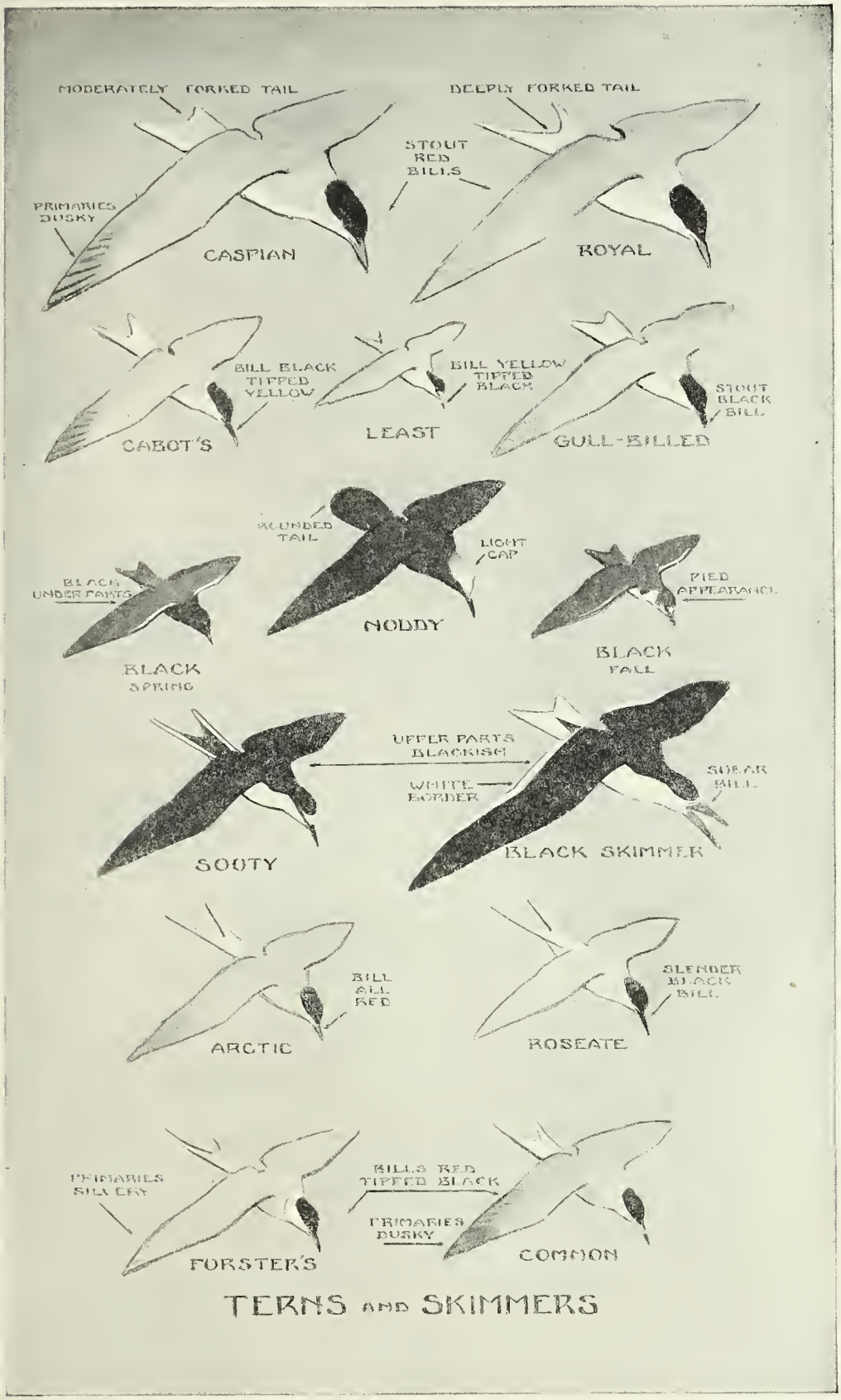
RANGE. Breeds in west-central and eastern Canada, and northern States, also along the Atlantic Coast from Newfoundland to North Carolina. Winters from Florida to Patagonia.

RANGE IN NORTH CAROLINA. Summer visitor along coast, breeding at least from New Inlet southward to Beaufort.

The Common Tern has bred on the North Carolina coast at least since 1903, when we first began to make records of tern colonies in this State. No special attempt has been made to determine the extent of its breeding range in North Carolina until the summer of 1939. At that time a few birds were noted between the South Carolina line and Morehead City, but none were discovered breeding in this territory. On Shark Shoal, in Beaufort Harbor, H. H. Brimley and Pearson found a nest with three eggs on June 13, and another with two eggs the next day. These nests were slight hollows in the bare sand, each being lined with a few fragments of dry grass. Fifteen or twenty birds were seen flying about. It should be noted that this is the farthest south the Common Tern has been reported as breeding on the Atlantic Coast of the United States. Some 30 miles northeast of this point in Cedar Bay, Brimley and Pearson, on June 16, found small groups occupying little islands known as Outer Swan, Inner Swan, and Castle Rock. No exhaustive search for nests was made but fully fifty were noted. In a few cases the eggs had hatched.

Several miles nearer to Ocracoke lies Long Rock, containing perhaps fifty acres. On June 17, several Common Terns' nests were examined, and 123 adult birds were counted. The same day, on Ocracoke beach, nests to the number of 25 were seen, and two days later, during a tramp over part of the beach on the south side of Hatteras Inlet, Brimley, Pearson, Walker, and Grover Quinn, Jr., found 142 nests. Four small islands, called "lumps," in Pamlico Sound some miles southwest of Cape Hatteras, on June 20, held 71 nests. On a grassy island included in Pea Island Refuge, as well as on the mainland of the adjacent "Banks," Walker, the superintendent, pointed out some dozens of nests and estimated the breeding Common Terns of that region to number from 300 to 400.

From these observations it appears that this species today breeds on our coast from Beaufort Harbor to New Inlet, occupying a total longitudinal range of about 100 miles, or approximately one-fourth of the North Carolina coast. All nests found were on the ground. In some cases the blotched and spotted eggs were laid on the bare sand; other nests were lined with varying amounts of grass, and still others had shell fragments collected about them. Our summer population of a few thousand Common Terns is increased for a short time in the autumn by migrants from farther north. By October they have left for their winter home in tropic seas, and they will not return to us again before mid-March.



Courtesy of Roger Tory Peterson

☆ Later records show an abundance from April to September. Winter records (November-December) are from Pea Island, Morehead City, and Wilmington. South of Beaufort nests are reported from Southport (1943). Inland records are from Raleigh (September), Greensboro (September), Davidson County (July-August), Mount Olive (August), and Rocky Mount (August). ☆

ROSEATE TERN.

Plate 26

Sterna dougalli dougalli Montagu. [72]

DESCRIPTION. Very similar to the preceding in both summer and winter plumage; underparts white, often tinted with pale pink; tail wholly white; bill black, reddish at base, dusky brown in immature birds. Length 14.00-17.00; wing 9.25-9.75; tail 7.25-7.75, forked for about 4.00.

RANGE. On the Atlantic Coast; breeds from Nova Scotia to Virginia. Winters from the Gulf of Mexico to Brazil.

RANGE IN NORTH CAROLINA. Coastal region, apparently only occasional.

At the height of the mating season the breast of this species is suffused with a pale tinge of roseate not easily seen unless in a favorable light. It breeds in colonies, often in company with Common and Arctic Terns. Pearson has found it usually bold and combative when the nest is approached. In July, 1919, while visiting tern colonies on Bluff Island, Maine, he was struck repeatedly by an irate Roseate Tern that in one of its plunging assaults stabbed its bill through his scalp.

We know of but three occasions when this bird has been found in North Carolina. Bishop took one at Pea Island, August 22, 1904. The second is an example of those odd occurrences that one discovers now and then in his study of birds. On January 20, 1937, E. L. Green, Jr., picked up one on the beach at Cape Hatteras after a storm. Note that this was in the dead of winter, at a time when, following the custom of this species, it should have been on some coast washed by the waves of the Gulf of Mexico, the Caribbean, or those of the South Atlantic. Two were collected at Oregon Inlet by R. C. Simpson and Grey, August 17 and 18, 1939.

EASTERN SOOTY TERN.

Plate 26

Sterna fuscata fuscata Linnaeus. [75]

DESCRIPTION. Upperparts uniform sooty-black; forehead, sides of head, and underparts white; bill and feet black. Immature birds: wholly sooty-brown, paler below; the anal region and under wing-coverts white. Length 15.00-17.00; wing 12.00; tail 7.00-7.50, forked for about 3.00-3.50.

RANGE. Mainly tropical and subtropical regions.

RANGE IN NORTH CAROLINA. Occurs only as a rare straggler from the tropical seas.

A colony of Sooty Terns has long been known to breed on the Dry Tortugas, a little group of islands near Key West, Florida. During the rest of the year, their natural range is from the Gulf of Mexico to Brazil. Occasionally a straggler has been found in more northern waters.

The first time Sooty Terns were recorded in North Carolina was on March 16, 1869, when Coues saw a flock at Fort Macon, Carteret County, that had come in during a southwest gale. Since that date, four other individuals have been blown to our State by storms from the tropics, and, oddly enough, all have been found inland at distances varying from 140 to 160 miles from the ocean. Also, all were received by H. H. Brimley at the State Museum. Two were taken in Wake County, one, June 30, 1909; the other on August 1, 1926. The third bird was found in Chatham County, August 3, 1926, and the fourth in Nash County, September 20, 1928.

☆ Two inland records are added as a result of Hurricane Connie. One for Henderson (August 17, 1955) and one for Mount Olive (August 7, 1955). ☆

LEAST TERN.

Plate 26

Sterna antillarum antillarum (Lesson). [74]

DESCRIPTION. Forehead and underparts white; crown, nape, and stripe from eye to bill black; back, wings, and tail pearl gray; winter birds with black of head mostly confined to posterior part. Immature birds: duller. Known from all our other terns by the much smaller size. Length 8.50-9.75; wing 6.50; spread 20.00; tail 3.50, forked for about 1.75.

RANGE. Breeds from Massachusetts to Venezuela; winters from the Gulf Coast to Argentina.

RANGE IN NORTH CAROLINA. Common summer resident along our entire coast.

Thirty-five years ago the Least Tern was on the verge of extirpation in North Carolina, but today it is the most abundant tern that inhabits our coast. It is an exquisite little creature, with its black cap, pearl gray wings, and white breast. Often it seems to show an utter disregard of human intruders. While crossing the bridge between Morehead City and Beaufort, almost any summer day, one may see dozens of them plunging into the water or passing overhead, uttering their cheerful little squeaks as they go. The Least Tern lacks one inch of being as long as a robin, but the expanse of its wings is four inches greater.

It nests on bare beaches or bars of shells and sand formed in dredging channels in harbors or in digging the Inland Waterway through our coastal marshes.

In June, 1939, a systematic search of their range in the State was made in order to ascertain their number and distribution. On June 7, 8, and 9, C. S. Brimley, Davis, Grey, and Pearson sought them about the inlets of Little River, Tubbs, and Lockwood's Folly, in Brunswick County. Some dozens of the birds were seen but no eggs were discovered. June 10, Davis and Pearson found colonies of breeding birds in Pender County at Rich and Elmore inlets and noted 61 nests. The birds were just beginning to lay, as many nests contained only one egg and no young were in evidence. On June 11, Davis, Pearson, and Royal visited a large dump made by dredging at Morehead City where several hundred Least Terns were attempting to hatch their eggs despite the destruction being wrought by small boys and crows.

H. H. Brimley and Pearson, on June 14 and 15, counted 37 occupied nests on a little shell dump just north of the Biological Laboratory at Beaufort and found

several nests on Shark Shoal. Nests to the number of 136 were counted in Bogue Sound some three miles from Morehead City; also 248 nests were seen on a dump by Barden's Ditch near Cape Lookout. At New River Inlet 82 nests of eggs and 2 young were counted. Opposite Beaufort's Community Center, 117 nests were found June 16. Other places where Least Terns' eggs were discovered during the next few days include Long Rock near Ocracoke, 60 nests; Ocracoke beach, 32 nests; Hatteras Inlet,, 30 nests; "Lumps" in Pamlico Sound, southwest of Buxton, 19 nests; and point of Cape Hatteras, 8 nests.

Walker pointed out various nests at the Pea Island Refuge. Usually no attempt was made to make a complete count of nests as it seemed inadvisable to disturb a breeding group of birds any longer than was necessary to determine its location, and only the nests that could readily be seen during a hurried examination were counted. In all, twenty-three nesting colonies were visited. The birds seemed to be thriving splendidly and possibly there were Least Terns to the number of 25,000 along the North Carolina coast in June, 1939.

Fig. 64. Least Tern.

The rebuilding of the population of this species, which was on the point of vanishing in 1903, is but another example of what may sometimes be accomplished in wildlife conservation by the enactment of wise laws and the cultivation of a public sentiment to support them.

☆ New records indicate the above abundance continues. Winter records are for Wilmington (December 27 and 30). Inland records are for Rocky Mount (September 17), Raleigh (October 10), and Mount Olive (August 17). ☆

Genus **THALASSEUS** Boie.

Large terns with crested heads and deeply forked tails. Two species occur on our coast.

ROYAL TERN.

Plates 26 and 27

Thalasseus maximus maximus (Boddaert). [65]

Description. Adults in summer: pale pearl gray above; the whole top of head, including occipital crest black in early spring; underparts and neck white. During breeding season, forehead and forepart of crown white, sometimes streaked with black. Adults in winter: similar, but head streaked with white and black; bill less red with dull yellow tip. Immature: top of head streaked with black and white, crest not noticeable; back washed with grayish. Length 18.00-21.00; wing 14.00-15.00; spread 42.00-44.00; tail 6.00-8.00, forked for 3.00-4.00.

Range. Breeds from Virginia to the West Indies; winters from Gulf of Mexico to Peru and west coast of Africa.

Range in North Carolina. Coastal region in summer, breeds.

It is a wonderful sight to behold thousands of Royal Terns standing over their eggs or balancing in the air, their black and white crests tossed by the wind, and their salmon-red bills flashing in the sunlight. When sitting on their eggs it is impossible, at a little distance, to see the sand between their bodies, so closely are they clustered.

Royal Shoal, a small, low, exposed bar of shells and sand in Carteret County, some ten miles northwest of Ocracoke Inlet, is a favorite breeding place for these birds. In June, 1907, Pearson paid one of his various visits to this spot and found the birds so tame he was able to photograph masses of them in the air and on the ground, many within a distance of fifteen feet. A storm tide recently had washed over most of the island and fully 1,000 eggs were found in a windrow where the waves had piled them. However, the birds were there and hundreds of newly laid eggs were to be seen, usually one, but sometimes two, in a nest.

Royal Shoal has been washed away and again rebuilt several times during the years which have elapsed. Some years the terns succeed in raising young and at other times this has been impossible. In 1909, Philipp found the island occupied by about fifty birds. May 21, 1912, H. H. Brimley found only Common Terns and Laughing Gulls breeding there.

So far as we are aware, no ornithologist again visited Royal Shoal for the next seventeen years. Reports reached us in 1939 that it no longer existed. Then on June 17, 1939, H. H. Brimley and Pearson came to this tiny isle in the vast expanse of the great Pamlico Sound. Royal Shoal was again high enough for the Royal Terns to make use of it, and the flock of birds that arose at our approach was most impressive. With string and tapeline we measured the main egg field. In a typical section ten feet square seventy-three nests were found. The space thus thickly occupied by eggs measured eighty by ninety feet. We calculated that there were 5,256 nests. This did not include a space of some forty by eighteen feet at one end of the colony where eggs had hatched and where a few hundred of the young were to be seen clustered in groups.

Cabot's Terns, which nest with the Royals, were seen, and a few of their nests, usually containing two eggs each, were examined, but no attempt was made to ascertain their numbers. Hastening our examinations we left as soon as possible, as the sun was hot and without the attention of the adult birds many

of the hatching chicks would soon have perished. Probably 6,000 pairs of breeding terns were occupying the little island.

Three other small groups of breeding Royal Terns were seen on our coast during the next few days, all of them in the Pamlico Sound region. These were Flouders Slough Rock, 118 nests; Miller Lump, 3 nests; and Pea Island Refuge, 23 nests.

☆ Incomplete exploration indicates a continued large population of these summer nesting terns, and that they have critical requirements for nesting sites. Winter records are for Pea Island (December) and Wilmington (December and February). ☆

CABOT'S TERN.

Plates 26 and 27

Thalasseus sandvicensis acuflavidus (Cabot). [67]

DESCRIPTION. It resembles the Royal Tern, but is smaller and the bill is black, tipped with yellow; top of head black. Length 14.00-16.00; wing 12.50; spread 34.00; tail 6.00, forked for about 2.35.

RANGE. Breeds on the coasts of Mexico, Texas, Louisiana, North and South Carolina. Winters from Florida to Brazil.

RANGE IN NORTH CAROLINA. Summer visitor along the coast, breeds sparingly.

Upon landing at the little island known as Royal Shoal, in Pamlico Sound, on the 27th of June, 1907, Pearson discovered among the hosts of breeding Royal Terns, a bird he had not seen before. It looked like a small Royal Tern except that the forehead was black instead of white, and it had a yellow-tipped black beak rather than a bright yellowish-red one. The bird was a Cabot's Tern, a subtropical species seldom seen on the Atlantic Coast of the United States. Soon he was able to pick out others amid the great host of sea birds gathered here. They had nests, containing usually two eggs each. More than twenty nests were found. The Audubon Society warden, N. F. Jennett, said some of the same kind of birds were also breeding on the Legged Lump, several miles distant, and later reported that a total of sixty-four Cabot's Terns' eggs were laid that year on the two islands.

The birds were so tame Pearson was able to approach within fifteen feet and photograph them. He gradually crawled to within seven feet of one sitting on its eggs, and the two watched each other for a time. The next year, 1908, Jennett wrote that 126 Cabot's Terns' eggs were laid on these islands in Pamlico Sound.

Back in 1871 Coues had reported this tern as a wanderer at Fort Macon, and Bishop had noticed the species twice at Pea Island, the dates being August 31, 1904, and August 4, 1906, but no one suspected that this bird, rarely known to breed north of the Gulf Coast of Louisiana, would take up its residence as far as North Carolina.

When Philipp went to these bird islands in Pamlico Sound in 1909, he found only six Cabot's Terns and three incubated eggs. These were on Miller Lump and the date was June 26. For the next breeding record of this bird in the State, we must skip twenty-seven years, or until June 13, 1936, when E. L. Green, Jr.,

ROYAL TERN. *Standing.* CABOT'S TERN. *Sitting.*

visited Clam Shoals, near Cape Hatteras. For *The Chat* of January, 1937, he wrote: "Several nested on the sand shoals in the sound with Royal Terns."

At Pea Island, August 18, 1938, Grey and Murray saw three of these birds. On June 17, 1939, H. H. Brimley and Pearson visited Royal Shoal and again found Cabot's Terns and their eggs, their nests being mingled with those of the Royal Tern.

☆ This Tern has only been recorded in recent years five times in five coastal localities.

Davis banded a pair on Pea Island on July 13, 1948. Six were noted July 11, 1953 on Gull Island off Buxton by Grey, Wray, Davis and Russell. Some of these had small fish in their mouths and huddled near them were several downy young which were taken to be their young. Sixteen were noted at Cape Hatteras between August 28 and September 4, 1951, by J. E. Willoughby. One was noted August 27, 1948 at Ocracoke by Larry Crawford and John Carr. They were reported nesting on Battery Island near Southport, by Douglas Jones, in 1943. ☆

Genus **HYDROPROGNE** Kaup.

Contains a single species, which is the largest of our terns and has an uncrested head and a comparatively short, slightly forked tail.

CASPIAN TERN.

Plate 26

Hydroprogne caspia (Pallas). [64]

Description. Plumages similar to the corresponding ones of the Royal Tern, but size larger; top of head black in breeding season and not crested; tail is shorter and much less deeply forked. Length 19.00-22.50; wing 15.00-17.50; spread 50.00 to 55.00; tail 5.25-6.75, forked for about .75-1.50.

Range. North America in general, but breeding in widely separated localities.

Range in North Carolina. Coastal region, April to November.

This, the largest of all our terns, much resembles the Royal, but is slightly larger. The note is different and more gutteral. When the wings are closed, the tips reach beyond the end of the tail, which is not the case with the Royal. On its breeding grounds it makes some attempt at lining the depression it scratches in the sand for a nest; the Royal does not do this. Also, their nests are well separated from each other, never crowded in compact masses, like those of the Royal.

Caspians have been reported breeding in Virginia and South Carolina, but none, to our knowledge, have nested in this State. We know of only thirteen times when the birds have been reported in North Carolina during the past thirty-five years. The earliest spring date it has been recorded was April 28 (1906, Bishop, at Pea Island), and the latest, November 5 (1924, in Currituck, Biological Survey). Oddly enough, one-half of our records are of birds that have been killed bearing metal U. S. Bureau of Biological Survey bands that had

been placed on them at northern breeding grounds. The list of places where and when these Caspian Terns were killed, and where and when they had been banded, follows:

Killed at Ocracoke, October 3, 1925; banded, Gravelly Island, Michigan, July 3, 1924.

Killed at Bogue Inlet, October 23, 1924; banded, St. James, Michigan, July 26, 1923.

Killed at Colington Island, October 22, 1923; banded, St. James, Michigan, August 20, 1922.

Killed at Harkers Island, May 14, 1925; banded, St. James, Michigan, July 21, 1924.

Killed at Currituck Sound, November 5, 1924; banded Saguenay County, Quebec, August 10, 1924.

Killed at Morehead Bluff, November 3, 1926; banded, Green Bay, Wisconsin, July 13, 1926.

Aside from the five observations made by Bishop during the summers of 1904, 1906, and 1907, and those just listed from information given by the Biological Survey, the only other reports of the bird for the State are by Burleigh, who saw one near Kitty Hawk, August 25, 1936, and by Mrs. R. C. Simpson, who saw four at Mullet Pond, near Beaufort, August 28, 1941.

☆ New records are for Cape Hatteras (August 28-September 4), Beaufort region (April-August 21), Wilmington (April, November and December records), and Southport (May 17). One inland record is for Greensboro (April 28, 1945). ☆

Genus **CHLIDONIAS** Rafinesque.

Contains a few species of rather small dark-colored terns, one of which occurs in North Carolina.

BLACK TERN.

Plate 26

Chlidonias nigra surinamensis (Gmelin). [77]

DESCRIPTION. Adult in summer: head, neck, and underparts black; upperparts slaty; under tail-coverts white. Adult in winter and immature birds with head and underparts more or less white, often having quite a mottled appearance. Length 9.00-10.25; wing 8.25; tail 3.75.

RANGE. Breeds in the interior of western North America, eastward to Ohio. Winters from Panama to Chile.

RANGE IN NORTH CAROLINA. Occurs in migrations, especially common in late summer, both along the coast and about inland waters.

These northern-breeding terns finish their domestic duties and as migrants begin to appear in North Carolina at a time when our own resident terns are still occupied with laying eggs or feeding their young. They have been recorded in the State during every month except November, December, January, Febru-

ary, and March, but are most common from late June and on until the latter part of September.

Although they catch very small fish, crustaceans, and other forms of life about the water, they capture many insects on the wing. It is not rare to see them over the marshes and lakes of the interior, fluttering and diving through the air like nighthawks. We have known Black Terns to come about boats in which men were fishing and endeavor to catch on the water, or even in the air, minnows which as bait are being cast by anglers. On June 10, 1939, Davis and Pearson saw two in breeding plumage fiying about a nesting colony of Least Terns on the south side of Elmore Inlet, Pender County, and during the next twelve days. H. H. Brimley, Pearson, and Walker noted many flocks of from six to twenty along the beaches as far north as Virginia. We have known of their appearance about inland waters near Raleigh, Roxboro, Blowing Rock, Hendersonville, Fayetteville, Chapel Hill, Rocky Mount, Greensboro, and at White Lake.

☆ Added records are coastwise from Cape Hatteras (August-September), Beaufort region (July-August) and Wilmington (December, January, and April 26), the last date for 300 birds. Inland records are from Mount Olive (August), Rocky Mount (June, August, and September), Henderson (September) Greensboro (April, August, and September), Elkin (September), Henderson County (July-August), and Highlands (August). ☆

☆ Genus **ANOUS** Stephens.

NODDY TERN.

Plate 26

Anous stolidus stolidus (Linnaeus). [79]

DESCRIPTION. With farehead white, shading ta leaden-gray an crawn and nape; with a dark spat in frant af eye; bill black. Rest af bady deep brawn becaming saaty brawn an wings and tail. Feet dark brawn. Tail braadly raunded, the middle feathers langer. Length 13:00 ta 16:00.

RANGE. Resident an trapical caasts, breeding in sauthern Flarida, caastal Lauisiana, in the Bahamas, West Indies; winters sauth ta Brazil, Island af St. Helena, and Tristan de Cunha Island.

RANGE IN NORTH CAROLINA. Accidental accurrence in sautheastern caastal area.

This is a beautiful tern about the size of a dove and with general appearance and flight like those of a pigeon. It feeds chiefly on small fish.

Our only record of this bird in North Carolina is based on the report of one seen on a pier at Fort Caswell in Brunswick County on August 29, 1949, by Dr. and Mrs. Will Rose. It apparently was exhausted from a recent storm, and could be observed from close range. This species has been recorded previously at Myrtle Beach, South Carolina which is about fifty miles south. Other records of this bird may turn up on our southeastern coast, especially after severe storms. ☆

Family **RYNCHOPIDAE.** Skimmers.

Gull-like birds with each mandible compressed like the blade of a knife. Contains a single genus with only a few species.

Genus **RYNCHOPS** Linnaeus.

BLACK SKIMMER.

Plate 26

Rynchops nigra nigra Linnaeus. [80]

DESCRIPTION. Upperparts black, except forehead, which is white, as are also the sides of head, underparts, tips of secondaries, and outer tail-feathers. Bill thin and knife-like. Length 17.00-20.00; wing 14.75-15.75; spread 42.00-50.00; tail 5.50, forked for about 1.25.

RANGE. Breeds on the Atlantic and Gulf coasts from Long Island, New York, to Mexico. Winters from the Gulf Coast to northern and eastern South America. Has also been found in winter.

RANGE IN NORTH CAROLINA. Coastal region in summer from mid-April to late November.

The Black Skimmer, known to many people as "Shearwater," is so distinctive in appearance, habits, and voice, there should never be any difficulty about its identification. Black above, white beneath, its knife-like beak and hoarse cries, are all very distinctive. It feeds by flying along, low over the water, and cutting the surface with the lower mandible, by which means it secures minnows and, to some extent, shrimp, upon which it feeds. It is most active at twilight but may be seen at any time of day, or heard at any hour of the night, especially when the moon is shining.

It breeds in small groups or in large colonies along our coast, sometimes in close proximity to companies of terns or Laughing Gulls. The eggs, which are deposited in cup-shaped hollows on bare beaches of sand and shells, show a great variation in their markings. Black Skimmers are the latest of the sea birds to breed, usually beginning to lay their eggs only when June is well under way.

At times storm tides destroy their eggs or young, causing them to lay again and again, often until August. After the breeding season, old and young accumulate in large flocks before migrating to the Gulf of Mexico or beyond. H. H. Brimley and Collie estimated they saw 10,000 in one group near Beaufort, October 7, 1935.

The bulk of them leave for the south in autumn, but as late as November 18 (1934) Pearson saw between 400 or 500 in one group in Beaufort Harbor, where they formed in ranks and wheeled with the precision of well-drilled troops. Mrs. R. C. Simpson saw several at the same place. December 15, 1939: Grover Quinn, Jr., seemed to establish the fact that at times it is a winter resident, when he observed a flock of fifty near Cape Hatteras, on January 24, 1940.

In the summer they often fly low over the gardens and yards at Beaufort, these brief excursions over the land apparently being merely for exercise and diversion.

On June 10, 1939, Davis and Pearson found many nesting hollows on the beach on both sides of Rich Inlet (Pender County), 138 of which contained eggs. During the next seven days, H. H. Brimley and Pearson saw many clutches of eggs and various new, unoccupied nests on Shark Shoal, Beaufort Harbor, and

on islands in Bogue and Core Sounds, at Cedar Island Bay, and on the "lumps" in Pamlico Sound near Hatteras. We visited the breeding colonies on Pea Island Refuge, in Dare County. Mr. Walker, who takes a justifiable pride in the teeming bird life on this great refuge he so ably guards, told us, among other interesting things, that the Black Skimmers had been egg-laying as early as June 3.

☆ New records to confirm winter residence are scores of birds for Pea Island (December), and Wilmington (December 1948-1952). Nesting records known indicate a general increase. ☆

Family **ALCIDAE.** Auks, Murres, and Puffins.

This family is composed of thirty-seven species and subspecies of birds, all of which inhabit the Northern Hemisphere, chiefly in the subarctic regions. They are birds of the ocean and only occasionally wander inland. The small fish and crustaceans upon which they feed are gathered by diving, often to a considerable depth.

Their bodies are heavy and their wings are short. The wings are used not only for flight through the air, but also are useful during their submarine activities. Their short legs are placed at the posterior end of their bodies, which causes them to stand nearly erect when on land. Their feet are webbed. Rarely do they come ashore except to breed, at which times they often assemble in large colonies, frequently several species using the same general territory. In winter, they move southward through the Atlantic well offshore, and may be seen in companies of various size. They do not journey as far as the warm waters of the tropical seas.

The three genera found in this State are each represented by a single species.

Genus **ALCA** Linnaeus.

RAZOR-BILLED AUK.

Alca torda Linnaeus. [32]

Description. Black above, secondaries tipped with white, underparts white; in summer the black includes the head and upper neck, except a white line from eye to bill and a white band across the black bill; in winter the chin and throat are white. Young birds have bill much smaller and more slender than adults. Length 15.00-18.00; wing about 8.25; tail 3.50.

Range. North Atlantic, breeds on coasts of northern Europe and in North America from New Brunswick to Greenland; south in winter to North Carolina.

Range in North Carolina. Winter visitor along the coast, apparently becoming more common of recent years.

The summer home of the Razor-billed Auk is in the cold sea waters of the North. Associated with others of its kind and often with murres, it repairs to cliffs overlooking the sea, where it lays its single egg, which requires a month's incubation before the young appears. Like many other northern species, this one drifts southward upon the approach of cold weather. In the winter of 1889-90, at least three of them reached North Carolina in the neighborhood of Cape

Lookout. One was killed by Lieutenant Foley, February 15, 1890 (*The Auk*, 1890, p. 189). Two others were shot near the Cape by Augustine Piner about the same date. Their mounted skins remained unidentified in his home until May, 1898, when they were shown to Pearson, who purchased the specimens and sent them to the State Museum in Raleigh.

After these first discoveries in 1890, thirty-three years elapsed before the species was again recorded in the State. Then, on January 29, 1923, one was taken by Charles M. B. Cadwalader on Currituck Sound (*The Auk*, 1923, p. 319). In January, 1927, the bodies of two freshly killed Auks were received at the State Museum, one having been taken on January 14, near Ocracoke, the other, on February 20, at Duck Island Club, Dare County. Another was secured by Willis Holding, near Harbor Island in Pamlico Sound, on January 19 of the same year. In 1933 Cottam took one near Ocracoke, January 18; Samworth caught one alive in New River, Onslow County, January 21. Cottam picked up an oil-soaked specimen on Pea Island, January 16, 1935. In 1936, E. L. Green, Jr., found three at New Inlet, December 19; and Walker recorded eighteen near Pea Island in mid-January, 1937, and others in early February, 1938.

The increase in the numbers of Razor-bills in North Carolina waters of recent years is doubtless due to the Migratory Bird Treaty between Canada and the United States that went into effect in 1918. Before that date Razor-billed Auk eggs for many years had been systematically gathered for food. Today we may regard this bird as a regular, although far from common, winter resident in this State.

☆ The 2 new records are from Beaufort (January, 1951), and Atlantic Beach (January 1, 1952). ☆

Genus **URIA** Brisson.

BRUNNICH'S MURRE.

Uria lomvia lomvia (Linnaeus). [31]

DESCRIPTION. Upperparts black or blackish; secondaries tipped with white; underparts white; the black includes the chin, throat, and underside of upper neck in summer, but these parts are white in winter. Length 16.50; wing 8.40.

RANGE. Breeds on the eastern Arctic islands, Labrador, and Greenland: winters from southern Greenland to Long Island, and casually farther south.

RANGE IN NORTH CAROLINA. Occasional on our coast in winter.

The single, large egg of the Brunnich's Murre is laid on a ledge of a cliff, bordering the open sea. At such places the birds gather in large companies, often with other species. The colonies are raided by people of those regions and sometimes large numbers of birds and their eggs are gathered for food. As murres live in the ocean, they are forced southward as the ice gathers, although many remain close to the edges of the drifting floes.

We know of only three specimens of the Brunnich's Murre having been reported in North Carolina. In 1896, Pearson bought a freshly killed one from a woman in New Bern, Craven County, who said that it had been shot a day or two before (December 22 or 23) near the mouth of Neuse River. It was

mounted by Pearson and preserved in the museum at Guilford College. William S. Post, of New York City, received one from Currituck Sound, January 3, 1901. The third record was made by Walker in mid-January, 1937, when he watched one in the sea off Pea Island.

Genus **ALLE** Link.

DOVEKIE.

Alle alle (Linnaeus). [34]

Description. Head, neck, and upperparts black; the chin and throat, as well as the rest of the underparts, white in winter; secondaries tipped with white and scapulars striped with same. Length 8.00; wing 4.75; bill, half an inch.

Range. North Atlantic, breeding in the Arctic regions; winters from Greenland to Florida.

Range in North Carolina. Off the coast in winter, apparently becoming more common of recent years.

In the far North, tanned skins of the Dovekies are used to make warm shirts and parkas for the shivering inhabitants. Its eggs, its young, and its own plump body, provide food which is an acceptable variation from the usual fare of seal and walrus flesh. No gunpowder is necessary for reaping the annual harvest of these little sea birds that appear with the approach of warm weather. In untold thousands, Dovekies come out of the ocean and swarm about the rock-strewn slopes of the coast. It is easy to kill them with rocks thrown into the great masses that alight on the larger boulders. A net, with a handle for swinging it, not unlike a butterfly net, is used in taking great numbers of them. The natives eat them raw and also cache large piles of their bodies for winter use. In a depression in the frozen ground, they are dumped and stones piled over and about them, as a protection from hunting foxes and hungry dogs.

The Dovekie is the smallest of the North Atlantic Diving birds, being only about as long as a Starling, although the body is much heavier. It feeds on crustaceans. In winter it moves southward, usually being an offshore bird. Our first record was on December 31, 1902, when Pearson picked up a living specimen on the ocean beach, 31 miles north of Cape Hatteras. It had recently lost one of its feet, perhaps from the bite of some fish. Later Pearson found a specimen in the Narrows Island Club House in Currituck County. He was told it had been taken in that county "in 1901 or 1902."

During the next seven years a few additional specimens came to notice. Then in *The Auk,* 1909, p. 436, appeared the following statement by H. H. Brimley: "This bird appeared in numbers on the North Carolina coast last winter. In January, 1909, reports came of a small black and white duck with a bill like a chicken's, hitherto unknown, these reports covering the coast line from Roanoke Island to Beaufort. A man living on the point of Cape Lookout told me that he had seen not less than fifteen or twenty dead ones washed up along the shore, and that flocks of them 'used' in Lookout Cove during the winter. The game warden at Cape Hatteras said that they were in Pamlico Sound in flocks of hundreds. Flocks also were reported from Core Sound. Several were taken at Beaufort and forwarded to northern ornithologists. The Museum received three specimens in the flesh, all from Beaufort, and two skins came from Roanoke

Island. . . . All those found dead were much emaciated, as was certainly the case with the three received by me."

On November 7, 1932, a storm from the northeast commenced along the New England coast and lasted for some days. This was perhaps responsible for the greatest flight of Dovekies along the Atlantic Coast that has been recorded. Murphy and Vogt in *The Auk* for 1933, p. 325 and on, gives a list of about two hundred points where they were recorded, sometimes in great numbers, from Maine to Cuba. All but about twenty of these observations were made in November; the others were in December. There were five reports from North Carolina. Samworth at New River Inlet stated that they were present in "large numbers."

Fig. 65. Dovekie.

These birds continue to be seen along the North Carolina coast. Walker and Captain Midgett reported a thousand or more in the Oregon Inlet region in December, 1936, and again January, 1937. E. L. Green, Jr., advises that between December 5, 1936, and January 5, 1937, "several hundred were to be seen around Cape Hatteras Point, three or four found nearly every day on the beach in a weakened condition, most of which were killed and eaten by the gulls." From November 8 to February 24, 1939, another flight occurred; it extended from Cape Hatteras to Onslow County. Many dead were found on the beaches.

☆ New winter coastal records are for Wrightsville (1946 and June 1947), Pea Island (1948), Lake Mattamuskeet, Dare County, and New Hanover County (1950). At times one bird was seen and in 1950 scores were seen. Inland records are from Dover, Kinston, Rocky Mount, and Raleigh, all of these for December 7 and 8, 1950. The June 1947 record is notable. ☆

Order **COLUMBIFORMES.** Pigeon-like Birds.

Members of this order are found in most countries of the world. Something like 700 species and subspecies have been recognized by ornithologists. Some of them spend virtually all their lives in forests; others are rarely seen except in open country. Nearly everywhere they serve more or less as food for man, and throughout the Americas the larger species are hunted for sport.

They make simple nests, as a rule placing these on the ground or in trees. One or two eggs constitute the complete clutch. The young are fed by a regurgitated "milk" from the throats of their parents. There are those that collect in colonies to breed, but the majority are found in solitary pairs during the breeding season. After the young are raised, it is common for most species to gather into flocks, often numbering many hundreds or even thousands of individuals.

The Rock Dove, roosting and nesting today along the sea cliffs of western Great Britain, is supposed to be the parent bird of all the forms of domestic pigeons which man has developed by artificial breeding. At least 350 varieties of these domestic birds are known today, including such well-known breeds as Tumbler, Fantail, Jacobin, and the Homing Pigeon which by the public is constantly and incorrectly called "Carrier Pigeon."

Family **COLUMBIDAE.** Pigeons and Doves.

Genus **ZENAIDURA** Bonaparte.

EASTERN MOURNING DOVE.

Plate 28

Zenaidura macroura carolinensis (Linnaeus). [316]

Description. Brownish-olive, glossed with blue and vinaceous; a dark ear spot in male; belly cream-buff; plumage with metallic luster. Female: duller. Length 11.00-13.00; wing 5.75-6.50; spread 17.00-18.00.

Range. Breeds from Nova Scotia and Kansas southward to Gulf of Mexico. Winters from Massachusetts to Mexico.

Range in North Carolina. Whole State at all seasons.

The Mourning Dove, often called "Turtle Dove," and by Audubon named the "Carolina Dove," is a common resident in this State. Migrants from the north in winter increase the population, especially in eastern North Carolina. It is a legal game bird in this State as well as many others. It is often shot over fields to which the birds are lured by baiting with grain and salt. During the autumn and winter they frequently assemble in large flocks. They are found not only in

fields, but in the breeding season are partial to open woods. As consumers of weed seeds, they are particularly valuable to farmers.

The Mourning Dove's nest is a simple structure composed of twigs and usually is placed on a lower horizontal limb of a tree, but sometimes one may be found on the flat rail of a fence, a stump, or on the ground. The white eggs are two in number. The young, as in other species of this family, are fed by regurgitation. In the nesting season our doves often rise in the air and sail about in unusual maneuvers. Their notes are a sad *coo-o-o,* repeated several times, with certain undulations.

Kelly reports finding eggs in Cumberland County, April 16 to June 4. Armfield, in Guilford County, gives the period for eggs as May 1 to June 14 (1895-1898). C. S. Brimley has found them from April 11 to June 21. Smithwick collected a clutch on July 7 (1894). In this State eggs probably are laid from late March until September and, rarely, even later.

Mourning Doves often roost on the ground. When a heavy sleet falls on the birds so roosting the tails of some of them get frozen to the ice, and the feathers, being but lightly attached, may be left behind when the bird starts to leave in the morning. During a ten-mile drive in Mississippi, two days after a heavy sleet, Pearson counted some 250 doves, about two-fifths of which were bobtailed.

☆ New nesting dates extend from March 18th to October 2nd. Despite hunting pressures this bird appears to maintain its population. ☆

Genus **ECTOPISTES** Swainson.

PASSENGER PIGEON.

Ectopistes migratorius Linnaeus. [315]

DESCRIPTION. Mostly bluish-drab above, reddish beneath. Length 15.00-17.00; wing 8.00-8.50; tail 8.25-8.75.

RANGE. Formerly the whole eastern United States, including the Mississippi Valley. Now extinct.

RANGE IN NORTH CAROLINA. Formerly the mountain and piedmont regions, east at least to Wake County, but apparently only during the migrations.

Popularly known as "Wild Pigeons," these birds once existed in countless millions, whose flights in migration darkened the sky and whose roosting places were strewn with broken branches wrenched from the trees by the sheer weight of the tons of bird life piled upon them. A nesting colony, in Michigan about 1876, thickly occupied the forest over a territory twenty-eight miles long by three or four miles wide. The last known nesting site in Michigan was in 1881. According to William Brewster it was "only of moderate size—perhaps eight miles long."

Actual records of the occurrences of Passenger Pigeons in North Carolina are few, although many people speak of seeing them in their youth. Kemp P. Battle, Jr., of Raleigh, has told us of beholding a flock "about a mile wide" winging its way over Alamance County in 1871 or 1872. We have three records of pigeons noted in 1880. Seeman speaks of seeing some that year near Durham;

G. M. Garren reported several large flocks in Buncombe County; and the late J. J. Blair said he saw many in Guilford County in November. On April 18, 1891, H. H. Brimley spent several hours following a single specimen in some pinewoods near Raleigh. This was the last of three living Passenger Pigeons he ever saw. Cairns collected a female near Weaverville, Buncombe County, on October 20, 1894. Here our records of the presence of these birds in North Carolina come to an end.

Fig. 66. Passenger Pigeon.

Twenty years later, on September 1, 1914, what was believed to be the last Passenger on earth, died in a cage in the Zoological Garden in Cincinnati. A species whose myriads of individuals once obscured the rays of the sun had succumbed to the guns and snares of a race of people who, until comparatively recent years, treated the valuable bird life of America with little consideration. The awakening of a public conscience on this subject came too late to save the Passenger Pigeon.

☆ For more about this bird the reader is referred to John Lawson, (1714), this volume, page XVI Introduction.

Thomas Hariot, with the Roanoke Island Colony, 1585, was the first to record this bird in English literature.

Col. William Byrd, in October 1728, described the enormous flocks of wild pigeons in much the same terms as did Lawson.

Mark Catesby, 1731, provided the first adequate description of this bird, with a colored plate.

Dr. John Brickell, 1737, dwelt upon the medicinal potency of the blood and dung of the pigeon.

The Moravian Colony at Salem recorded these birds in a great roost there in 1860 and 1861. In 1870 huge flocks were roosting on the campus at Davidson College. In the spring of 1878 Dr. Kemp P. Battle records a large "cloud" of pigeons passing over the edge of the village of Chapel Hill. ☆

Genus **COLUMBIGALLINA** Boie.

EASTERN GROUND DOVE.

Plate 28

Columbigallina passerina passerina (Linnaeus). [320]

DESCRIPTION. Grayish-olive with bluish gloss; the head and breast vinaceous in male. Female: duller. Length, average, 6.75; wing 3.00-3.50; tail 2.50. Easily known from the Mourning Dove by its small size and short, not wedge-shaped tail.

RANGE. Southeastern States.

RANGE IN NORTH CAROLINA. Occasional or accidental.

This is a plump little dove, whose length about equals that of the English Sparrow. Although a well-known resident in most of the South Atlantic and Gulf States, it has not been found breeding in North Carolina. However, pairs have twice been found during the breeding season, which strongly suggests the thought that the species may occasionally nest in the State. Thus, on May 21, 1930, T. G. Empie came upon two birds at Carolina Beach near Wilmington; Burleigh, on June 2, 1932, saw a pair at Fort Fisher, which is in the same county (*The Auk,* 1937, p. 456.)

We know of five additional dates when Ground Doves have been found in the State. These were: May 29, 1891, Cairns shot one in Buncombe County; October 7, 1911, H. H. Brimley secured a specimen that had been killed at Wilson. He also received bodies of two others, one from Rutherford County, and the other from Guilford; the former arrived on November 18, 1924, the latter on November 18, 1933. L. Lassiter reported one at Four Oaks, Johnston County, December 23, 1919. Several years ago the bodies of two Ground Doves came to the State Museum from Craven County, but the dates of their capture are not available.

This diminutive pigeon is largely terrestrial, only occasionally being seen sitting on a fence rail, telephone wire, or other moderately elevated perch, from which may be heard its sad, moaning cries. Its nest is a slight affair, usually composed of dried rootlets. Generally it is placed on the ground, sometimes in a grainfield or in a weed patch. Now and then the top of a decayed stump, a

flat limb, or the cross rail of a scuppernong grape arbor, is regarded by the birds as a suitable place for depositing their two white, elliptical eggs.

☆ New records are from Long Beach (September 8th and 15th), and Wilmington (December 27th and late April). ☆

Order **PSITTACIFORMES.** Parrots and their Allies.

Parrots, as a rule, are brightly colored birds with strong, hooked bills, and with toes placed so that two point forward and two extend backward like the cuckoos and most woodpeckers. Some 800 different kinds are known, scattered through many countries. Of these, the Thick-billed Parrot of Mexico, which on rare occasions occurs in the mountains of southern Arizona, is the only parrot that today may be found in the United States, except a few Mexican birds (*Aratinga holochlora*) which escaped from captivity in south Florida. Another, the Carolina Paroquet, was formerly abundant in the central and southeastern States.

Family **PSITTACIDAE.** Parrots.

Genus **CONUROPSIS** Salvadori.

CAROLINA PAROQUET.

Conuropsis carolinensis carolinensis (Linnaeus). [382]

Description. Green above, head and upper neck yellow, becoming orange or orange-red on forehead lores and cheeks; underparts light yellowish-green; tail long, graduated. Length 11.50-14.00; wing 7.00-7.50; tail 6.50-7.00.

Range. Formerly the eastern United States, including the Mississippi Valley, ranging north in summer to the Ohio and Potomac rivers and casually farther. Now extinct.

Range in North Carolina. Formerly abundant, now extinct.

According to Colonel William Byrd, the Carolina Paroquet was common in North Carolina when he surveyed the boundary line between this State and Virginia in 1728 (see Introduction), but we have no knowledge of the species being seen here of recent times. The last record of this bird in South Carolina was made in 1851; the last in Tennessee was in 1876; and the last ones known to exist on earth were discovered in south Florida in 1904.

Carolina Paroquets were particularly fond of seeds. They gathered those of the cocklebur and hackberry, for example; also they ate beechnuts and at times were very destructive to apples. The white eggs, like those of many other parrots, were laid in the hollows of trees.

Order **CUCULIFORMES.** Cuckoo-like Birds.

Nearly two hundred kinds of cuckoos are known to science. Most of the species live in the tropics. In North Carolina two are with us as regular summer visitors, and another has been found as a possible wanderer. Most cuckoos are

solitary in their habits, not occurring in flocks, and usually are skilled in keeping out of sight. Their weird clucking notes may be heard in the forests or orchards, or in shady streets of cities and towns. The famous bird for which the cuckoo-clock is named, is an European species. The feet of cuckoos are equipped with two toes in front and two behind; bill straight or slightly curved downward.

Family **CUCULIDAE.** Cuckoos, Road-runners, and Anis.

Genus **COCCYZUS** Vieillot.

YELLOW-BILLED CUCKOO: "RAIN CROW."

Plates 28 and 38

Coccyzus americanus americanus (Linnaeus). [387]

DESCRIPTION. Brownish-gray above, white beneath; the wings largely rufous; tail-feathers, except the middle pair, black, broadly tipped with white. Length 11.00-12.75; wing 5.50-5.75; tail 6.00-6.15.

RANGE. Eastern North America, wintering in southern South America.

RANGE IN NORTH CAROLINA. Whole State in summer, from late April to late October.

The *keow-keow-keow* of the cuckoo, which many believe foretells the coming of rain, is heard wherever trees are found, but the bird itself is seldom seen. It does not perch in the open but keeps concealed in thick foliage as from cover to cover it glides noiselessly, and from its movements one might almost think, apprehensively. Although its food consists chiefly of insects, C. S. Brimley stated that he has twice seen individuals whose head feathers were caked with the slimy excretions of tree toads which he said they had eaten. It is one of the few species that eats the tent caterpillar. Pearson once watched a Yellow-billed Cuckoo at Greensboro swallow nineteen of these hairy despoilers of fruit trees in a period of fifteen minutes.

The nest is a thin, simple structure, composed usually of twigs and leaves, and is secreted in a thick bush or low tree. The eggs are pale green and are two to four in number. They are frequently laid at intervals of from two or three days.

This bird is a summer resident in North Carolina, its breeding season being from May to August.

☆ Early records added are April 19th (Wilmington), April 16th (Raleigh) and April 1st (Winston-Salem). Late records are August 15th (Highlands), October 17th (Greensboro), October 10th (Roanoke Rapids) and September 4th (Cape Hatteras). ☆

BLACK-BILLED CUCKOO.

Plates 28 and 38

Coccyzus erythropthalmus (Wilson). [388]

DESCRIPTION. Grayish-brown above without rufous on the wings; underparts white; the tail-feathers the same color as back, and with the exception of the middle pair, narrowly tipped with white. Length 11.00-12.75; wing 5.15-5.65; tail 6.25-7.00.

RANGE. Breeds from North Carolina northward; winters in South America.

RANGE IN NORTH CAROLINA. Whole State at least during the migrations, breeds in the mountains and occasionally in the east.

CUCKOOS, MEADOWLARK, WHIP-POOR-WILL, *Etc.*

It is not always easy to distinguish this bird from its near relative, the Yellow-billed Cuckoo. However, it has less white on the tip of the tail, the central feathers of which are darker than are those of the other species. Also, it has less reddish-brown on the wings; it possesses a red eye-ring, and its bill is black with no tinge of yellow. The notes of the two are slightly different but to describe them with accuracy is difficult. The general nesting and feeding habits of the two birds are similar.

North Carolina is about the southern breeding limits of this species, although it has been found in summer in the mountains as far south as Georgia. With us it is more likely to be seen during the spring and autumn migrations. The only specimen Pearson ever found at Greensboro was one he captured alive in May, 1902, when through an open window it came into his biological laboratory at the State College for Women. Odum found it only as a migrant at Chapel Hill. We know of few breeding records aside from Cairns's statement that years ago it bred in the Asheville region. C. S. Brimley shot a female at Raleigh, July 15, 1886, containing an egg that would soon have been laid; Smithwick found a nest with eggs in Bertie County, May 19, 1896. Burleigh found a nest with three fresh eggs at Bent Creek, Buncombe County, May 12, 1930.

☆ Of the 16 new records all correspond to the above except a winter record for Yancey County, December 27th. New records are early (April 1, Winston-Salem) and late (October 10th, Roanoke Rapids). Nesting records are from Raleigh, Chapel Hill and Lake Summit, Henderson County. ☆

Genus **CROTOPHAGA** Linnaeus.

SMOOTH-BILLED ANI.

Crotophaga ani Linnaeus. [383]

Description. Wholly black; bill very heavy, nearly as high as long. Length 12.00-15.00; wing 5.50-6.00; tail 7.50-8.25.

Range. West Indies, Yucatan, Central and South America, rare in Louisiana and southern Florida, accidental farther north.

Range in North Carolina. Reported once.

This is a long-tailed, slender, black bird, with compressed bill that is nearly as high as it is long. In the West Indies or tropical America one often sees it about pastures. Generally they are noted in small flocks, rarely more than a dozen or fifteen at a time. Sometimes they are found about cattle, but more often they are seen sitting silently, and it would seem morosely, on bushes or low trees. "Black Witches" the natives call them in the Virgin Islands. The Panamanians refer to them as "Jew Birds."

Several females often lay their eggs in a large communal nest, but not more than one-third of the eggs usually hatch.

The Smooth-billed Ani or "Savanna Blackbird" obtains a place in this book through one having been taken near Edenton, Chowan County, on August 23, 1866. It was donated to the Philadelphia Academy of Natural Science, where the specimen is still in existence (W. W. Cooke, in letter of June 29, 1908.)

It probably is idle to speculate how this nonmigratory, weak-flying bird came to be found so far from its natural haunts. However, we do know that sailors sometimes take strange, native birds on their ships and later restore their liberty on some foreign shore.

Order **STRIGIFORMES**. Owls.

There are about two hundred and fifty species of owls in the world, some representatives of the group being found in every country. In North America there are nineteen species and various subspecies. Eight species and two subspecies occur in North Carolina. These are classed under six genera which belong to two families, *Tytonidae,* Barn Owls, and *Strigidae,* Typical Owls. All owls in this State are mainly nocturnal, being rarely seen abroad by day. Most of them are forest dwellers. Their eyes are very large and are directed forward so it is necessary to turn the head when they want to look to either side.

Family **TYTONIDAE**. Barn Owls.

Genus **TYTO** Billberg.

BARN OWL.

Tyto alba pratincola (Bonaparte). [365]

DESCRIPTION. Various shades of tawny, very finely mottled, dotted and streaked with darker; underparts white or light tawny with some spotting. Length 18.00; wing 13.25; tail 5.75. Known from our other owls by the long face and nearly bare legs.

RANGE. United States and south through Mexico to Nicaragua.

RANGE IN NORTH CAROLINA. Resident.

The odd appearance of the Barn Owl readily suggests the name by which it is often called, the "Monkey-faced Owl." When captured or cornered, it stands with head deeply lowered and with eyes fixed on its tormentor, swaying its body widely from side to side and hissing its resentment.

As a nesting place, this peculiar bird chooses hollow trees, holes in banks, barn lofts, and even church steeples in towns. Its eggs range from four to nine and are laid at intervals so that eggs and young of different sizes may be found in the nest. Its food consists almost wholly of mice and its economic value is so well recognized that laws almost universally protect it. It seems not to be abundant anywhere but we have records for it in at least thirty-four counties scattered throughout the entire State. These observations were made during every month in the year except September. Among the breeding records are those made at Salisbury, May 3, 1923 (E. M. Hoffman); Statesville, spring of 1923 (J. C. Crawford); and Pollocksville, Jones County, August 3, 1929 (H. T. Davis).

More than twenty-five species and subspecies of Barn Owls are known to science. They are distributed throughout tropical and temperate regions of all the continents, including Australia. So closely do they resemble one another, an observer who has come in contact with one species will instantly recognize any other Barn Owl regardless of the country where it may be found.

It is not an abundant bird anywhere in eastern North America. Its cries are peculiar and its appearance is so surprising that quite naturally it attracts attention and comment whenever seen or heard. Unwisely it often is shot by some man or boy for the doubtful pleasure of holding in the hand for a few moments a bird heretofore unknown to the gunner.

Proof that at least some Barn Owls migrate to North Carolina for the winter was supplied by the capture of one at Wilmington, on December 9, 1925. It carried on one foot a band bearing a number which, by the records kept in Washington, showed it had been placed on the bird at Westville, New Jersey, on May 20, about four months before.

Fig. 67. Barn Owl.

☆ Localities to add are Greensboro, Lake Summit, Elkin, Greenville, Rocky Mount, Raleigh and Bertie County. ☆

Family **STRIGIDAE.** Typical Owls.

Owls with the facial disk nearly circular, the middle claw not pectinate, the tarsus feathered down to the toes, and the toes themselves usually feathered. Two tufts of feathers adorn the head of some species.

Genus **OTUS** Pennant.

EASTERN SCREECH OWL.

Plate 29

Otus asio naevius (Gmelin). [373m]

Description. Grayish, much streaked and barred or else with the gray replaced by bright rufous, the two color phases bearing no relation to age, sex, or season. Head adorned with two tufts; eyes yellow. Length 9.00; wing 6.25; spread 18.00-24.00; tail 3.00.

RANGE. Eastern North America from Ontario southward through the uplands to northern Georgia.

RANGE IN NORTH CAROLINA. A resident in this State, especially west of Raleigh.

The Screech Owl is about the size of a quail although it does not weigh as much. Undoubtedly it is our most abundant representative of the owl family, and at all times is a very interesting little creature to observe. While drowsing away the day light hours in some tree or thicket, it is not infrequently discovered by an inquisitive small bird, which at once notifies all other birds in the neighborhood. Soon a mob, which may include titmice, wrens, vireos, warblers, and jays, gathers about and by actions and cries exhibits deep resentment at the presence of this unpopular neighbor. On such occasions, the Screech Owl may sit for a time apparently unmoved, with head stretched upward and feathers drawn tightly against its body, presenting on the whole a most unbirdlike appearance. It does not seem to see well in the daylight; and when at length it decides to depart, its flight is extended only to some neighboring tree where we may suppose it fondly hopes to escape further annoyance.

Everyone who has learned "the noises of the night" knows its quavering, shivering cry, which may be heard even in our most populous towns. It lays its three to five white eggs in the hollow of some tree or tall stump. A good place to look for it is in the cavity of an old apple tree or the abandoned nest of the flicker. Close inspection will often reveal a fragment of down adhering to the edge of the entrance hole. Armfield found eggs at Greensboro as early as April 2 (1895). Probably few are laid after May 10.

The food of the Screech Owl is varied; apparently it will consume almost any small form of life its alert eyes discover during its nightly hunting expeditions. It eats moth, beetles, and various caterpillars. A very popular article of food is the mouse, and the bird renders farmers and fruit growers great service on account of the enormous numbers of these rodents it destroys. It also eats birds to some extent, especially during the season when it is gathering food it considers most suitable for its young.

"One morning I paused to look at a nest in which four very young Song Sparrows were huddled the evening before, but I found the nestlings were gone. Part of the dried grass lining of the nest was pulled upward from the bottom as though by the grasping claw of some marauder reaching down from the limb above. In the night I had heard near-by the cries of a Screech Owl. Circumstantial evidence only."—*Pearson.*

Occasionally this owl catches adult birds even as large as the Mourning Dove. It has been known to enter a woodpecker's nesting-hole and kill the brooding bird. However, for steady every-day diet, it undoubtedly prefers mice, which is one of the very good reasons why it has been made illegal for anyone to kill a Screech Owl.

☆ Forty-five additional records confirm the above range. ☆

SCREECH OWL. *Red and Gray Phases.*

SOUTHERN SCREECH OWL.

Otus asio asio (Linnaeus). [373]

Due to slight variations, usually in size or color, the Screech Owl, which is found in North America from Alaska to northern Mexico, has been divided into seventeen subspecies. One is the slightly smaller Southern Screech Owl which, according to the latest edition of the American Ornithologists' Union's *Check-List of North American Birds,* inhabits the "Lower Austral Zone from Virginia to Georgia and the Gulf States." Therefore, those that breed in that area of the State eastward of a general north and south line running through Raleigh, are presumably referable to this subspecies. Those found west of the line indicated are supposed to be mostly of the subspecies named Eastern Screech Owl. A bird taken by Wetmore at Kitty Hawk, December 31, 1933, and another captured at Southport, May 15, 1939, were declared by him to be typical specimens of the southern form.

Genus **BUBO** Dumeril.

GREAT HORNED OWL.

Bubo virginianus virginianus (Gmelin). [375]

DESCRIPTION. Upperparts mottled with ochraceous-buff and black; facial disk ochraceous-buff; part of throat and middle of chest white; rest of underparts mostly white finely barred with black. Length 20.00-25.00; wing 14.50-16.50; tail 8.25-9.00; spread 49.00-57.00; weight 3½ to 5 pounds.

RANGE. Eastern North America.

RANGE IN NORTH CAROLINA. Whole State at all seasons.

The Great Horned Owl is the feathered tiger of the air. Like the striped terror of the jungle, it hunts by night; among birds and small mammals it is all powerful, and its work of destruction is swift and sure. Its wing-feathers are edged with down so its flight is noiseless. Quietly as a gliding shadow, it descends on a luckless rat, rabbit, crow, grouse, or perhaps a domestic hen unwisely roosting in the open. C. Hart Merriam once stated: "I have known one to kill and decapitate three turkeys and several hens in a single night."

In Fisher's *Hawks and Owls of the United States,* P. R. Hoy, of Philadelphia, is quoted as saying: "The specimen in the collection of the Academy was known to carry off from one farm, in the space of a month, not less than twenty-seven individuals of various kinds of poultry before it was shot."

The female is larger than the male, as is the case with virtually all hawks and owls.

No State in America has a law protecting this bird, and it has been persecuted with steel traps and guns ever since white men landed on these shores; still, the big Horned Owl lives on, and its numbers are very great throughout the whole of North America. It varies slightly in its plumage with different environmental conditions and has been classified into ten subspecies, each occupying a particular region in its vast range extending from northern Alaska to central Mexico.

Great Horned Owls usually select old nests of hawks, ospreys, or crows as the place to lay their two to four white eggs. It breeds earlier in the year than any other bird in North Carolina, except the Bald Eagle. At Raleigh eggs have been found on March 9 and 26. Kelly examined a nest with eggs in Pender County, February 29, 1931; Brown found a nest near Greensboro on January 19, 1929, containing three young that must have been hatched from eggs laid in December.

Fig. 68. Great Horned Owl.

☆ From pellets at a nest on Masonboro Sound (January 17th) Claude McAllister found remains of Horned Grebe, Virginia Rail and Lubber Grasshopper as new food evidence. ☆

Genus **NYCTEA** Stephens.

SNOWY OWL.

Nyctea nyctea (Linnaeus). [376]

Description. Pure white, more or less barred with dusky, the markings much heavier and more extensive in the female; feet and toes feathered to the tips of the latter. Length 20.00-27.00; wing 17.80-18.75; tail 9.00-10.25.

Range. Northern parts of northern hemisphere, straggling far south in winter.

Range in North Carolina. An irregular winter visitor.

The great white "Arctic Owl" drifts southward in autumn as food becomes scarce in the high latitudes where it has reared its young. Many reach the United States. Especially is this true when the cycles of the lemming and hare populations approach a low ebb, and famine stalks abroad in the northern wilderness.

While with us, this bird will take any other bird or mammal it finds and can overpower. Its great strength enables it to kill poultry, pheasants, and wild ducks. However, it never comes to North Carolina in sufficient numbers to have any appreciable effect on our wild or domestic bird life.

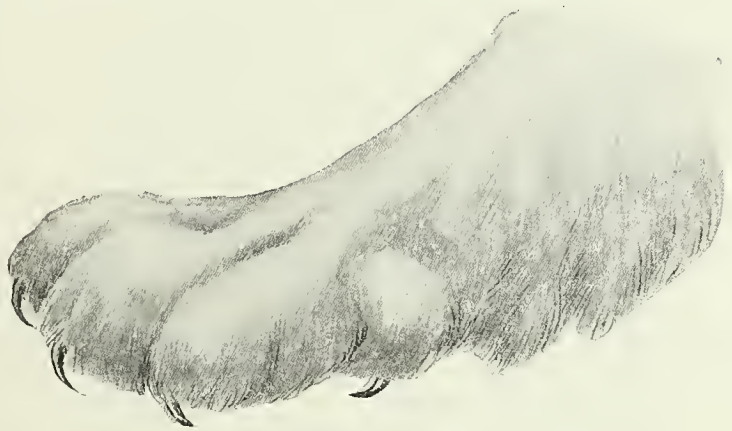


Fig. 69. Foot of Snowy Owl.

So striking is the appearance of this unusual owl, its arrival in the neighborhood is generally the signal for some man to rush out with a gun to shoot it. Now and then we read that a Snowy Owl has been killed and sometimes a dead one is sent to the State Museum in Raleigh. Thus we have positive records of it having been found in the counties of Alamance, Buncombe, Dare, Duplin, Granville, Guilford, Hyde, Iredell, Nash, Pasquotank, Rowan, Vance, and Wilkes. These owls that have been recorded in North Carolina all appeared during the period between November 18 and "early February."

☆ Added to the above counties are Carteret, Currituck, Halifax and Forsyth. All records are for December, 1945 to 1952. ☆

Genus **STRIX** Linnaeus.

NORTHERN BARRED OWL.

Strix varia varia Barton. [368]

DESCRIPTION. Olive-brown barred with whitish above; breast barred; belly streaked with dusky; toes feathered nearly to the tips. Length 19.00; wing 13.00; spread 43.00-47.00; tail 8.50.

RANGE. Eastern North America.

RANGE IN NORTH CAROLINA. Probably throughout the western and central parts of the State.

The Barred Owl is a common resident throughout much of the State, and early in spring before nesting begins, it may frequently be heard hooting even in the daytime. It becomes quite noisy again later in the year when the young have left the nest. Its favorite haunts are wooded lowlands.

Fig. 70. Barred Owl.

Generally the eggs are laid in the hollows of trees, but near Raleigh, W. H. Hamnett found two young in an old hawk's nest, March 24, 1939. The nesting season, at least in Cumberland and Wake counties, is known to be in March or early April. Usually the eggs are two in number, and, like all owls' eggs, are pure white. It is fond of frogs but feeds mainly on various kinds of rats and mice, occasionally killing birds, and still less often robbing the farmer's poultry yard. However, as farmers generally keep their chickens under cover at night, the hen roost is seldom disturbed by the barred owl. Its various shrieks, *hoo-hoo's*

and *ha-ha's* are the most characteristic night sounds of the swamps and timbered lowgrounds.

☆ New records, and those given above, point to the fact that this bird is found throughout the State and at all seasons. ☆

FLORIDA BARRED OWL.

Strix varia georgica Latham. [368a]

The following item appeared in *The Auk,* for April, 1930, p. 253:

"In an account of the bird life of North Carolina, Pearson and the Brimleys in discussing the Barred Owl remarks that 'it is probable that the owls of this species found in summer in the southeastern part of the State may, upon closer study, prove to be the southern variety known as the Florida Barred Owl.'

"During a recent visit to the section known as Bayview, on the north shore of Pamlico River near Bath, N. C., I obtained a female Florida Barred Owl, thus substantiating the supposition of occurrence of this form in the State. The bird in question was brought to me by Fred Cutler on January 16, 1930, and is preserved in the collections of the National Museum. It shows in normal manner the lack of feathering on the toes that distinguishes this race. Barred Owls are common in this lowland area.—*Alexander Wetmore, National Museum, Washington, D. C.*" A second specimen of this owl was obtained by Wetmore from Bethel, Pitt County, January 22, 1940.

☆ We add a specimen collected in October, 1946, 15 miles north of Wilmington. ☆

Genus **ASIO** Brisson.

Medium-sized owls; external ears enormously large. The so-called "ear-tufts" are near together on each side of the base of the bill, instead of being far apart on the outer sides of the head as in the Great Horned and Screech Owls.

LONG-EARED OWL.

Asio otus wilsonianus (Lesson). [366]

DESCRIPTION. Dusky more or less mottled and streaked with buffy and grayish; much variegated beneath; ear-tufts prominent. Length 14.00; wing 12.00; tail 6.00; spread 38.50.

RANGE. Temperate North America, breeding from Virginia northward.

RANGE IN NORTH CAROLINA. Uncommon winter visitor.

The Long-eared Owl may be mistaken by the untrained observer for a small Great Horned Owl, which superficially it somewhat resembles. Occasionally it has been found nesting in Virginia, and some may perhaps breed in North Carolina. It is highly nocturnal and is so skilled in keeping out of sight that few observers in this State have had the chance to study its habits.

In the central and northern States, where its habits are better known, the birds, often two or three together, are fond of sleeping throughout the day in large cedars or thick growths of other evergreen trees. The presence of such a roost may be detected by searching the ground beneath the trees for the pellets of

mouse fur and bones which the birds have regurgitated. It lays its eggs in old crow, hawk, or squirrel nests.

Pearson, who had an opportunity to see something of the activities of a family of Long-eared Owls which, in the summer of 1920, lived very near his camp on Lake Champlain in New York State, found that after leaving the nest the young and old alike continually sounded their *oo-oo* notes throughout the twilight hour and for some time later.

Fig. 71. Long-eared Owl.

We have only thirteen records of this bird in North Carolina. At Raleigh the Brimleys noted it February 19, 1891; December 11, 1893; January 18, 1900; and February 24, 1910. Cairns took one in Buncombe County in November, 1889; one caught in pole trap on a quail preserve in Guilford County was brought to Pearson in December, 1901; one was shot at Cary, Wake County, February 18, 1930; and one was sent to the State Museum from Chatham County, November 16, 1934. Burleigh saw one near Asheville, December 1, 1930. On November 2, 1940, a specimen was found in Raleigh and given to the State Museum. Joe Biggs reported one taken in a trap in Pitt County, December, 1939; one seen at Micaville, Yancey County, December 20, 1939, by H. H. Cash; and one seen at Elkin in January by Hodel.

SHORT-EARED OWL.

Asio flammeus flammeus (Pontoppidan). [367]

Description. Buffy-whitish, striped with dark brown, the stripes narrower below; ear tufts very inconspicuous. Length 15.00; wing 12.00; spread 40.00-42.00; tail 6.25.

Range. Nearly the whole world except Australia.

Range in North Carolina. So far as recorded, a scarce winter visitor.

If you would see the Short-eared Owl in North Carolina, go into the grown-up meadows or the marshes during the winter months. After much labor you may flush one from the ground or at twilight may possibly find one searching for food. It feeds principally on mice, which it seeks in open places rather than in the woods. When hunting, its movements somewhat resemble those of the Nighthawk as it sails along, only a few yards above the ground, turning, doubling back, and dropping down on silent wings. It nests on the ground also, but you would probably have to journey as far north as New Jersey before you could hope to find its eggs, which are four to seven in number.

Fig. 72. Short-eared Owl.

We know of it in North Carolina only during the months of November, December, January, and February. Between the years 1886 and 1939, the Brimleys recorded it at Raleigh thirteen times, an average of one every four years, and throughout all that period they were actively engaged in ornithological work. Yet they have found twice as many as have been seen by all other observers in the State combined, so far as we are aware.

It is by no means a common bird with us. In the mountains Cairns took one near Weaverville, November 6 (1891), which is the earliest autumn record for its appearance in the State. Skinner made a general statement that it occurred at Juniper Lake, Moore County, in winter. Pearson secured a specimen at Greensboro in January, 1902, and H. H. Brimley took one on the extensive marsh

of Lake Ellis, Craven County, November 12, 1910. The latest seasonal record we have is at Raleigh, February 9 (1910).

☆ One new record is for Pea Island (December 6th) and another for Mecklenburg County (November). ☆

Genus **AEGOLIUS** Kaup.

SAW-WHET OWL.

Aegolius acadicus acadicus (Gmelin). [372]

DESCRIPTION. Brown above more or less spotted with white; white below striped with brown. Length 8.00; wing 5.50; tail 3.00.

RANGE. Northern North America; winters sparingly south to the Carolinas and Louisiana.

RANGE IN NORTH CAROLINA. A casual winter visitor.

The notes of the Saw-whet Owl suggest the sound produced by the filing of a saw, hence the name. It is, for an owl, a very small bird, being two inches shorter than a robin. In this State, it has been found only in the winter.

T. G. Samworth, of Onslow County, late in February, 1931, found a Saw-whet Owl perched on a cross piece nailed to two rafters just below the peak of the roof of a new house he was building. Two boards above served as a shelter. The bird readily allowed itself to be captured and he examined it at leisure. Samworth wrote: "It was found perched there several mornings, in fact, until the building we were erecting was closed in. Later I flushed it several times from a near-by thicket."

H. H. Brimley, on December 15, 1933, found the body of a Saw-whet floating on Duck Creek in Onslow County, and back in February, 1892, he bought a mounted specimen, exhibited at the Fish and Oyster Fair in New Bern, that presumably had been killed in the State. Walker discovered a dead one on Pea Island, December 6, 1940. We know of only four other North Carolina records, all of them being from Wake County. These were: December 18, 1894; December 4, 1897; December, 1910; and December 6, 1939. On this last date an emaciated specimen, weighing only 1¾ ounces, was picked up in Oakwood Cemetery. (*The Auk*, January, 1941, p. 107.)

☆ New records are from the counties of New Hanover (November 13th), Union (September 9th) and Mecklenburg (September 9th).

Ernest Seeman reported this owl from our higher mountains as early as 1942. There have been a number of subsequent records. A late record is for Mount LaConte on May 29, 1957, by James T. Tanner. ☆

Order **CAPRIMULGIFORMES.** Goatsuckers.

These birds have extremely large mouths which in many cases are fringed with long bristles. The legs are short and the toes are slightly webbed. The middle claw is pectinate. The plumage is variously mottled, and the birds are chiefly crepuscular or nocturnal. These last-named characteristics combined with their soft plumage have caused some students to regard them as being rather closely related to the owls. They feed chiefly on night-flying insects, including mosquitoes and moths.

They are called goatsuckers because of an old belief in Europe that, when heard in the pastures at night, they had come to rob the goats of their milk. About one hundred kinds are known to inhabit the tropical and temperate regions of the earth. The order is composed of four families, distributed throughout many countries.

The cries or "songs" of the various species have a wide range. Thus the note of the Nightjar of western Europe is much like the restrained croak of a tree frog; the peculiar shout of a Mexican Pauraque (pronounced Pow-rah-kay) suggests the scream of some strange mammal; and the rhythmical combination of notes given by two North Carolina species rather clearly pronounce the names by which they are called.

Family **CAPRIMULGIDAE.**

This is the only family of goatsuckers found in the State.

Genus **CAPRIMULGUS** Catesby.

Bristles at gape very long; tail rounded.

CHUCK-WILL'S-WIDOW.

Plate 28

Caprimulgus carolinensis (Gmelin). [416]

Description. Upperparts mottled and streaked with black and ochraceous-buff; tail similarly mottled, the end half of all but the two middle tail-feathers white, more or less washed with buff; underparts mottled with black, ochraceous, and creamy-buff; and with a whitish band across upper breast; the female lacks the white or buff tips to the tail-feathers, and the whitish band across the breast is replaced by a buff one. Length 11.00-12.00; wing 8.70-8.90; spread 24.75-25.50; tail 6.25.

Range. Breeds from Missouri and southern Maryland to Texas and the Gulf States. Winters from Florida to northern South America.

Range in North Carolina. Summer resident in central and eastern counties. Arrives in April and departs in October.

The Chuck-will's-widow is a common summer bird in the coastal plain regions of the State and occurs in the piedmont section to some extent. At Raleigh it has been noted in spring as early as April 10, and in autumn as late as September 21. The cry, from which the bird gets its name, is heard at night with great frequency in May and June. It begins with a soft *cluck*, followed by a distinct double note, which alone is heard unless one is close enough to notice the *cluck*. We have known people to call it "Will's widow." There is a widespread impression that the Chuck-will's-widow is the male Whip-poor-will, and its notes frequently are interpreted as *"chip-fell-out-o'-white-oak"* and *"twixt-hell and white-oak."*

The bird inhabits thickly wooded regions and lays its two beautifully marked eggs on the leaves of the forest floor. In color they are pinkish-buff, marbled and spotted with various shades of olive-gray and brown; in size they are about 1.40 x .97.

Although it is insectivorous in its feeding habits, C. S. Brimley once killed a specimen whose stomach contained a Carolina Wren that had been swallowed whole.

We have very little data as to breeding dates for this species but may record that the Brimleys once found eggs near Raleigh on May 13. Three observers have noted the bird at Chapel Hill (Orange County): Pearson, May 20, 1899; G. S. MacNider "during the summers of 1902 and 1903"; and Odum, April 16, 1930, April 23, 1931, and April 24, 1934. Our most western record is for Morganton, where C. E. Gregory heard one calling the night of May 15, 1935.

Fig. 73. Chuck-will's-widow.

☆ A winter record is December 23rd at Orton, and a western record is for Elkin (April 28th). An early record is April 9th (Wilmington). ☆

EASTERN WHIP-POOR-WILL.

Plate 28

Caprimulgus vociferus vociferus (Wilson). [417]

DESCRIPTION. Grayish, much variegated with blackish and buffy; a white crescent on the breast; and in the male the ends of the outer tail-feathers are white. In the female, however, the white is replaced by buffy. Length 9.75; wing 6.25; spread 17.25-19.60; tail 4.75. A smaller and grayer bird than the Chuck-will's-widow, which in general it very much resembles.

RANGE. In eastern North America, breeds from southern Canada to western South Carolina. Winters from eastern South Carolina to Central America.

RANGE IN NORTH CAROLINA. Nearly the whole State in summer but largely replaced in the east by the Chuck-will's-widow.

The summer influx of the Whip-poor-will population reaches our State in early spring. In 1921, C. L. Newman, of Raleigh, reported to H. H. Brimley that he heard three calling the night of March 16. The same year, J. S. Holmes heard one at Chapel Hill on March 19; Brown noted another at Salisbury the next evening. These birds rarely call in the late summer, so it is difficult to answer the question, "When do they depart in autumn?" The latest date that it has been recorded at Raleigh was on November 6. O. C. Jones killed one at New Bern, December 10, 1934, and it is not improbable that a few may at times pass the entire winter in some of our southern coastal counties.

Being a nocturnal woodland bird, often heard but seldom seen, it is perhaps natural that the erroneous idea should have spread abroad that the Whip-poor-will and the "Bullbat" are merely different names for the same bird. The latter usually is seen flying about shortly before sunset, and the former is heard calling a little later. The feeding and nesting habits of the Whip-poor-will are almost identical with those of the Chuck-will's-widow.

☆ New winter records are for Wilmington (December 26th and 30th) and Castle Hayne (December 30th). New early records are April 26th (Wilmington), April 1st (Elkin), and April 13th (Highlands). Nesting records are from Yancey and Bertie Counties. ☆

Genus **CHORDEILES** Swainson.

EASTERN NIGHTHAWK: BULLBAT.

Plate 28

Chordeiles minor minor (Forster). [420]

DESCRIPTION. Blackish, barred and mottled with grayish and buffy; a large white patch on the wing, and in adult males with a broad white band across all the tailfeathers but the middle two. Length 9.75; wing 8.00; spread 22.50; tail 4.50.

RANGE. Breeds from Alaska and Newfoundland southward to Washington and northern Georgia. Winters in South America to Argentina.

RANGE IN NORTH CAROLINA. Common in migration and summer resident throughout much of the State.

Startle a Nighthawk from its two spotted eggs, laid on the bare ground, and it will tumble and flutter about in an apparently helpless condition, with the evident intention of drawing the intruder away from the vicinity. Usually when not incubating, the bird passes the daylight hours resting lengthwise on the horizontal limb of some tree or occasionally on the top rail of a fence. Late in the afternoon it begins ranging over the woods, fields, or even cities on its wandering expeditions in quest of flying insects. If the day be cloudy, it may not wait until evening to begin its flight. Rarely it may be seen hawking about at noonday. Its characteristic *"peent"* note may be heard also during the night.

At the termination of a long sweep toward the ground a loud hollow, booming sound is frequently heard. This is produced by the wind rushing between the wing quills. Our earliest record for its arrival in spring is April 15, 1937 (C. S. Brimley at Raleigh). The latest date at which it has been observed in autumn was October 26 (Feild, at Raleigh). Eggs of the nighthawk have been found from May 12, 1935 (Kelly in Cumberland County) to well into June (C. S. Brimley in Wake County).

☆ Earlier records are for Mount Olive (March 25th), Wilmington (March 23rd), and Elkin (April 2nd). New nesting records are for the counties of Carteret, Beaufort, Bertie and Nash. A flock of some five hundred were estimated at Windom (September 10th). ☆

FLORIDA NIGHTHAWK.

Chordeiles minor chapmani Coues. [420b]

DESCRIPTION. In markings similar to the preceding, but smaller and with the light markings of the underparts more numerous. Length 8.60; wing 7.10; tail 4.10.

RANGE. In summer from North Carolina and southern Illinois southward to Florida and eastern Texas. Winters in South America.

RANGE IN NORTH CAROLINA. Not yet determined with accuracy.

The Florida Nighthawk was described by Coues from Florida specimens in 1888. It is generally believed to be the subspecies that breeds in the southern half of the coastal plain and the neighboring margin of the piedmont region of North Carolina. Only by carefully studying specimens from all the region mentioned can an adequate knowledge of its North Carolina range be acquired. As a matter of fact, we know definitely of only five specimens having been obtained in North Carolina. The first was shot by Coues at Fort Macon on June 10, 1869. The skin is in the bird collection of the National Museum in Washington. Oberholser states in Bulletin 86 of the United States National Museum (1914) that in the cabinets of the Academy of Natural Sciences of Philadelphia there are three specimens which were taken by H. H. and C. S. Brimley at Raleigh. The labels on two of them bear the date of August 10, 1893; the other one was collected on August 5, 1896.

While a little group of us were at the Orton Plantation in Brunswick County in the early evening of May 3, 1939, four nighthawks were secured. One of these obtained by Harry T. Davis proved to be of the Florida subspecies. It is now preserved in the State Museum at Raleigh.

☆ New records are from Southport, Mount Olive and Pea Island, the last being nesting records. ☆

Order **MICROPODIFORMES.** Swifts and Hummingbirds.

Small or very small birds with the bones of the wing before the final bend very short. Two families of the order are represented in this State.

Family **MICROPODIDAE.** Swifts.

Swifts are essentially birds of the air, being perfectly at home on the wing but very helpless when on the ground. More than ninety species are known distributed throughout much of the world, principally in tropical regions. Four varieties are found in North America, but only one, the Chimney Swift, lives east of the Mississippi River. Many of them employ in their nest construction a glutinous, salivary secretion. In the case of a species found in eastern Asia, the nest is made wholly of this substance and forms the basis for the "bird's-nest soup" used much in the Far East, and which may be procured for a good price in the hotels of some American cities.

Genus **CHAETURA** Stephens.

CHIMNEY SWIFT: CHIMNEY SWALLOW.

Plate 34

Chaetura pelagica (Linnaeus). [423]

DESCRIPTION. Sooty-brown, throat paler; length 5.25; wing 5.00; spread 12.00; tail 2.00, with each feather ending in a sharp spine.

RANGE. Eastern North America; winter range unknown but presumably northern South America.

RANGE IN NORTH CAROLINA. Whole State in summer from April to October.

For millions of years our swift undoubtedly roosted and cared for its young in the hollows of trees. However, when white men came and began to erect chimneys, it quickly found these to be more convenient and safer places for its domestic uses, and the hollows of trees were abandoned. During more than fifty-five years of field experience, Pearson has found it entering hollow trees on only three occasions: Once in the Big Cypress Swamp of south Florida and twice in the forest bordering Great Lake, in Craven County, North Carolina. On each occasion the birds were seen to enter the open top of a large hollow cypress tree. The Chimney Swift's legs are small and weak and, therefore, it does not perch like most other birds but clings to the inner side of a chimney or occasionally the wall of a building, bracing its weight with its stiff tail-feathers.

Fig. 74. Chimney Swift.

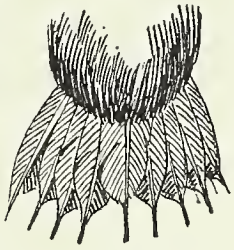


Fig. 75. Foot and tail of Chimney Swift.

The nest is of small dry twigs collected, while in flight, from the outer limbs of trees, and glued together by the bird's glutinous saliva. It is shaped like a half saucer and is stuck on the vertical inner wall of a chimney. Four to six pure white eggs are laid.

There are records of eggs being found in North Carolina as early as May 15 (Kelly, in Cumberland County, 1930) and as late as June 15 (Armfield at Greensboro, 1895). The earliest date we have of its arrival was reported by George Lay, at Chapel Hill, on March 29 (1938). Our latest date for it in autumn was recorded by Grey at Raleigh, October 22 (1937). In the early autumn, when Chimney Swifts are preparing to migrate, they often collect in large numbers to roost in some capacious chimney. After sunset, one day in September, 1900, Pearson and R. N. Wilson, now of Duke University, counted 1,025 entering a chimney of Memorial Hall on the Guilford College campus.

While watching an eclipse of the sun from the roof of the old Department of Agriculture Building, in Raleigh, more than thirty years ago, H. H. Brimley noted great numbers of swifts gathering and pouring down the chimney of the

heating plant as the light decreased. Evidently the birds thought the day was over.

Swifts subsist entirely on insects, which are captured while on the wing.

☆ Earlier records are March 23rd (Wilmington) and March 28th (Greensboro). New nesting records are from Winston-Salem, Rockingham and Charlotte. ☆

Family **TROCHILIDAE.** Hummingbirds.

Included in this order are the smallest birds in existence. They are found only on the continents and islands of the Western Hemisphere, and some 600 species and subspecies have been described. These are distributed all the way from Cape Horn to northern Alaska. They are extremely abundant in the tropics. On a coffee plantation in Puerto Rico, Pearson, in April, 1937, counted more than fifty hummingbirds at one time feeding on the blossoms of a flowering tree. Sixteen species of this order are found regularly in the United States and Canada, but only one occurs east of the Mississippi River. Before the millinery trade was forced by legislation and public sentiment in the United States, Canada, and Great Britain, to abandon the use of bird feathers, millions of hummingbird skins from tropical America were shipped to the great feather markets of London and Paris. Then, as now, hummingbirds were largely collected with the use of blowguns.

Genus **ARCHILOCHUS** Reichenbach.

RUBY-THROATED HUMMINGBIRD.

Plate 30

Archilochus colubris (Linnaeus). [428]

DESCRIPTION. Bright shining metallic green above; white beneath, throat ruby-red in male, white in female; spotted and speckled in immature birds of both sexes. Outer tail-feathers tipped with white in female, plain in male. Length 3.05-3.85; wing 1.60-1.80; spread 3.60-4.75; tail 1.25.

RANGE. Eastern United States in summer; winters from extreme southern United States to Central America.

RANGE IN NORTH CAROLINA. Whole State in summer from April to early October.

The Ruby-throated Hummingbird is a well-known summer resident of North Carolina, arriving early in April and departing usually in October. The earliest date it has been noted at Raleigh was April 9, 1929 (Snyder), and, oddly enough, on the same date in 1933 (G. B. Lay), and again on April 9, 1936 (Grey). Our latest seasonal record is also from Raleigh when on December 7, 1934, one was caught in a greenhouse by Mrs. R. W. Green.

This bird is a familiar object, as with plumage glinting in the sunlight and with rapidly beating wings it hovers about the flowers of the garden. With its long tongue it extracts nectar from the blossoms or catches tiny insects that have been drawn to them in quest of the sweet food. The indigestible fragments of the insects later are ejected in balls as owls dispose of the bones and fur of the mice they have eaten.

RUBY-THROATED HUMMINGBIRD. *Male and Female.*

The nest is a small structure about the size of a large walnut. It is made of plant down and covered with bits of bark and lichens, which are held in place with a cordage of spider web. Usually it is saddled on a small limb of a medium-sized tree and so closely resembles a knot that often it is passed by unnoticed. We have seen the nests on the limbs of oaks, pines, apples, elms, maples, hickories, and dogwoods, at heights varying from four to thirty-five feet. The eggs laid in May, June, or July are two in number, are white, and are not more than half an inch in length. The parents are very zealous in the defense of their nest and often dart at any intruder regardless of its size. The young are fed by regurgitation.

☆ An earlier record is March 30th (Greensboro). Nesting records are from Bertie, Orange, Forsyth, Avery and Swain Counties. ☆

Order **CORACIIFORMES.** Kingfishers and Motmots.

Kingfishers have large heads, short legs, and small feet. Many are fish-eating; therefore, they dwell near open water and make their nesting burrows in near-by sandbanks. Some Old World species live in forests, feed upon insects, and make their nests in the cavities of trees. About two hundred species are scattered over the earth's surface. The young are naked when hatched and do not acquire down before their juvenile plumage develops. There is only one family of this order in North Carolina. It is represented by one genus which in turn gives us a single species.

Family **ALCEDINIDAE.** Kingfishers.

Genus **MEGACERYLE** Kaup.

EASTERN BELTED KINGFISHER.

Plate 38

Megaceryle alcyon alcyon (Linnaeus). [390]

Description. Ashy-blue above, a bluish band across breast, otherwise white beneath; female with sides and band across breast chestnut; tail black, speckled and barred with white. Length 12.50; wing 6.00; spread 20.50-22.00; tail 3.75.

Range. Breeds from Labrador to the Gulf. Winters from Virginia to South America.

Range in North Carolina. Whole State in summer, remaining through the winter in most sections. In the mountains, chiefly a summer resident.

Along streams, river banks, and the shores of lakes, as well as about smaller bodies of quiet waters, the Kingfisher may be found sounding its police-whistle call as it flies. It feeds on fish, securing these by headlong plunges, usually after pausing for a moment on rapidly beating wings. On a favorite perch, oil and scales may be seen where the bird beats its fish before it is swallowed.

Its five to eight white eggs are laid at the end of a five or six-foot burrow excavated in a steep cut-bank usually near water. Pearson found four addled eggs in a nest made in the side of a railroad cut in Gates County, July 5, 1892.

Smithwick took eggs in Bertie County, May 7, 1896, and May 13, 1907. Kelly has collected eggs in Cumberland County as early as April 19 (1922).

The first birds noted in spring at Asheville by Cairns were seen March 11 (1894). R. B. Wallace reported that one remained through the winter of 1935-1936 in the same region. (*The Auk,* 1936, p. 227.)

☆ Added mountain and winter records are for the counties of Watauga, Yancey, Buncombe and Swain. Nesting records are added from Henderson and Wake Counties. ☆

Order **PICIFORMES.** Woodpeckers and Allies.

(Of this order only the Family *Picidae* is represented in North Carolina.)

Family **PICIDAE.** Woodpeckers.

Three hundred and seventy-five species and many subspecies of woodpeckers are known throughout the world. As a rule they are found only where there are trees. All of our North Carolina species possess four toes on each foot, two of which extend forward, the other two reaching backward. The stiff tail-feathers serve as a prop to help bear the weight of the body, hence they are especially adapted for tree climbing. Their chisel-like bills enable them to cut into wood for their prey and also to excavate nesting hollows in trees or posts.

Their eggs are glossy white and the young are naked when hatched. The tongues usually are extensible and terminate in a sharp horny barb, useful in spearing insects and in drawing wood-boring grubs from their lurking places. In this State six genera including ten species and subspecies make their home. This number includes one that probably no longer occurs in the State.

Genus **COLAPTES** Vigors.

NORTHERN FLICKER.

Plate 31

Colaptes auratus luteus Bangs. [412a]

DESCRIPTION. Head ashy with a red nuchal crescent; rump white; rest of upperparts brownish barred with black; underparts pinkish-brown shading into yellow; a black crescent across breast; underparts behind the crescent thickly spotted with round black spots. Shafts and under surface of quills, both of wings and tail, golden-yellow. Male with a broad black stripe on each side of throat from base of lower mandible. Length 12.25; wing 6.25; spread 18.75 to 20.00; tail 4.50.

RANGE. Eastern North America, west to the Great Plains.

RANGE IN NORTH CAROLINA. Breeds in mountain regions and eastward for an unknown distance. Found elsewhere only as a migrant or winter resident.

Flickers, or "Yellow-hammers," are found throughout the year in all sections of the State. Their food consists largely of ants which are picked up with the bill or the long sticky tongue, which it will unhesitatingly thrust down the entrance of an ant hill. Its bill is slightly curved, as if to aid it in spading up

the earth. Sometimes these birds gather in numbers in fields, especially where hogs have been fattening on peanuts. The Brimleys once saw not less than sixty flickers in a comparatively small field feasting on peanuts. This bird is fond of cherries, persimmons, and many kinds of berries, including those of the black gum and dogwood.

The nest is excavated usually in a tall stump or dead tree. The eggs are usually five to seven in number. If, however, before the full clutch is laid, all but one or two are taken, and this practice is continued every day or two, a bird sometimes will continue to produce eggs for a long time. By this means, Joseph H. Armfield, between May 6 and July 5, 1898, took from a flicker's nest at Greensboro, eggs to the astonishing number of 48. The interiors of unoccupied, isolated buildings seem to hold a charm for this bird, and at times it will even chisel a hole through the weather boarding in order to effect an entrance.

During migration, and perhaps throughout the entire winter, many Northern Flickers are to be found in eastern North Carolina. Two banded in Pennsylvania and New Jersey were taken in October and December in Scotland and Wayne Counties.

☆ In field work this bird cannot be distinguished from the Southern Flicker. The assumptions of the previous authors cannot now be changed. ☆

SOUTHERN FLICKER.

Colaptes auratus auratus (Linnaeus). [412]

Description. Similar to the Northern Flicker but slightly smaller, with relatively longer bill. Wing less than 6.00; tail less than 4.00. Most of the colors darker with less yellow below and more black spotting.

Range. Breeds from North Carolina southward.

Range in North Carolina. Eastern part of the State and westward for an unknown distance.

In the field, one cannot differentiate between the Northern and Southern Flickers. It may not be far wrong to say that those nesting in our mountains are the northern form, and that those breeding in eastern North Carolina are the southern *auratus*. In central Carolina many perhaps are of intermediate form. Migrants and winter visitants are of the northern race.

Genus CEOPHLOEUS Cabanis.

SOUTHERN PILEATED WOODPECKER.

Plate 31

Ceophloeus pileatus pileatus (Linnaeus). [405]

Description. Dull black, a white stripe down each side of neck; whole top of head and crest and patch on cheeks red in male, but only crest red in female. Length 17.00; wing 9.00; spread 27.50; tail 6.25.

Range. Lower Austral Zone from southeastern Pennsylvania to the Gulf Coast.

Range in North Carolina. Resident in favorable localities where considerable bodies of heavy timber still exist.

The Pileated Woodpecker is about the size of the Common Crow and it lives over much of the State wherever swamps, large forests, or heavy timbered bottomlands are found. Its loud *cow-cow-cow,* repeated many times, is a sound that in tone and rhythm suggests the utterances of some giant sonorous-voiced flicker. Its ability to tear off large slabs of bark and even split away shingle-like pieces of wood from dead trees, provides striking evidences of its skill in the use of its chisel-shaped two-inch bill. At times it excavates large holes and extensive troughs in rotting logs. Such activities are conducted in quest of grubs to which it is very partial. It also consumes various kinds of fruits and wild berries. The bill also is used in digging annually a cavity for its nest in some dead tree or tall snag.

Although in North Carolina it is more common in the central and eastern portions than in the mountains, we, nevertheless, have records of it occurring in such western counties as Buncombe, Caldwell, Haywood, Henderson, Macon, Mitchell, and Yancey. It may be possible that some of the birds seen in the mountain regions are the Northern Pileated Woodpecker (*C. p. abieticola,* Bangs), a slightly larger bird known to inhabit the Canadian Zone from Nova Scotia, Pennsylvania, "and farther south in the Alleghanies."

☆ There are numerous new records from our mountains and this poses a question as to whether the northern sub-species are present. Since some observers have confused the identity of this bird with that of the larger and very rare—if not extinct—Ivory-Billed Woodpecker, it is well to emphasize that the sitting bird has a black body except for the white stripes that extend just beyond the neck. If you see this woodpecker flying above you will note that it has a central broad white band lengthwise of the wing. There is a black band behind this on the spread wing. The tail shows a V-notch. ☆

Genus **CENTURUS** Swainson.

RED-BELLIED WOODPECKER.

Plate 31

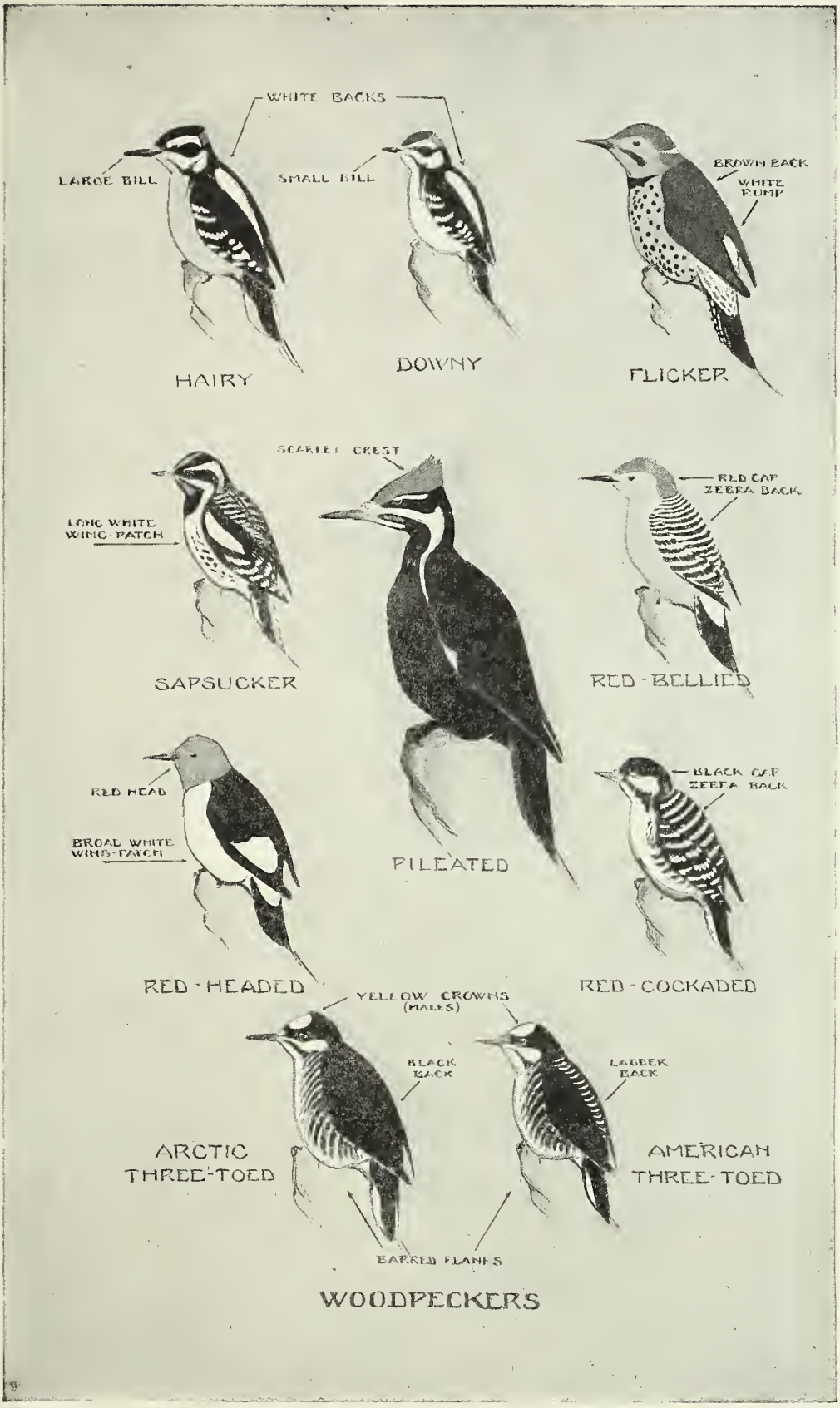
Centurus carolinus (Linnaeus). [409]

DESCRIPTION. Grayish, the back and wings barred above with black and white; the rump white with some black streaks. Whole top of head and nape red in male, but only the nape red in female. Length 9.00-10.00; wing 4.85-5.50; spread 16.25-17.50; tail 3.50-4.00.

RANGE. United States from Ontario south to the Gulf Coast.

RANGE IN NORTH CAROLINA. Whole State at all seasons, but local in distribution.

The Red-bellied Woodpecker, sometimes called "Chad" from some fancied similarity between this word and the bird's common cry, is one of the five species of small woodpeckers in the State locally called "Sapsuckers." Although reported from the mountain counties of Buncombe and Haywood, as well as in central North Carolina, it appears to be more common in the eastern sections of the State, especially in the neighborhood of swamps and lakes. It sometimes



Courtesy of Roger Tory Peterson

comes around houses and, with an oft-repeated *chuh-chuh,* hitches itself up the side of one tree after another.

It excavates the cavity for its nest in a dead tree or limb. Pearson once took four of their eggs from the nesting hole of a Red-cockaded Woodpecker in a living pine. The entrance had been somewhat enlarged by the new tenants. An occupied nest was found by Kelly in Cumberland County, May 7, 1933. Snyder reported seeing a pair that evidently was breeding near the head of Lake Raleigh, Wake County. His observations were made on April 27 and May 6, 1931. The Red-bellied Woodpecker is a permanent resident in the State. In addition to its insect food, this species is not averse to beechnuts and small acorns.

☆ New nesting records are from the counties of Bertie, Wake and Orange. ☆

Genus **MELANERPES** Swainson.

RED-HEADED WOODPECKER.

Plate 31

Melanerpes erythrocephalus (Linnaeus). [406]

DESCRIPTION. Head, neck, and upper breast red, the red of latter bordered below by a narrow band of black; rump, secondaries, and underparts white; rest of wings, back and tail black. Young birds with the red and black mainly replaced by grayish and the secondaries banded with black. Length 9.25-9.75; wing 5.25-5.75; spread 15.86-17.35; tail 3.60-3.75.

RANGE. In eastern United States from New Jersey to the Gulf Coast.

RANGE IN NORTH CAROLINA. Whole State, but local in its distribution.

The attractively marked Red-headed Woodpecker is a common bird in many of the wooded sections of North Carolina. "Shirt-tail," country boys often call it. It is frequently seen close to the abode of man. One may find it, for example, along the shaded streets of Raleigh and about the campus of the State University at Chapel Hill. It eats acorns and larvae of many insects which it finds on the bark or which it digs from rotten wood. It catches adult insects on the wing like a flycatcher, or picks them up on the highways where they have fallen after striking motorcars. There exists a certain amount of evidence that at times it destroys the eggs and young of other birds, a habit which, if true, we have never observed.

It excavates cavities in dead trees for its nest, and as usual in the family, the eggs are glossy white. May is the principal month for egg-laying, and throughout the spring and early summer, its loud rolling drum-like tattoo may be heard coming from some dead limb, or perchance resounding from a loose shingle above your head, or even from a tin-covered roof.

Genus **SPHYRAPICUS** Baird.

YELLOW-BELLIED SAPSUCKER.

Plate 31

Sphyrapicus varius varius (Linnaeus). [402]

DESCRIPTION. Upperparts black varied with white, belly yellowish; crown red in adult male, and usually in female; throat and chin red in male, white in female; a black patch

on breast in both sexes. Immature birds are brownish, much mottled and streaked, the markings of the adult but little evident. In life, the bird may usually be distinguished when climbing up a tree trunk by a conspicious white stripe down each wing. Length 8.75; wing 4.90; spread 15.25; tail 3.25.

Range. Breeds from Canada and northeastern States southward along the mountains to North Carolina.

Range in North Carolina. Fairly common from September to about May 1; breeds in the higher mountains.

As a summer bird, the Yellow-bellied Sapsucker is known in North Carolina only in the mountains. Our records for that season come from Highlands, Macon County, where the birds were found breeding by Brewster in 1885, and mentioned as breeding by Miss Huger in 1910; Roan Mountain, Mitchell County, where a nesting pair was observed by Rhodes on June 18, 1890; and Joanna Bald Mountain, Cherokee County, where a pair was seen by C. S. Brimley and Sherman, May 14, 1908. Also in Buncombe County, Cairns recorded it as breeding in the higher mountains, and Pearson found an immature bird on Graybeard Mountain, in July, 1903.

Five to seven eggs are laid in cavities dug by the birds in dead trees. In central and eastern Carolina this species is found throughout the winter months. Our earliest record of its arrival at Raleigh is September 25. The latest date on which it has been noted at this point was April 29 (the Brimleys).

The sapsucker's food consists chiefly of the sap and the cambium layer of bark. A bird, having found one or more trees that produce sap to its liking, may linger in the neighborhood for several weeks. It will dig many little holes through the bark, running these around the trunk, one ring above another. Often a favorite tree is thus used season after season for many years.

Pearson has written of his studies of one "sapsucker tree" (*National Geographic Magazine,* April, 1933, pp. 456-457) in which more than 1,600 holes were opened over a period of years. Many of these had about the diameter of a lead pencil, some were smaller, and "one that I measured was an inch and a quarter long by three-quarters of an inch in width." This tree, known as a "she balsam," stood near a well-traveled walk on the campus at Guilford College. It was about thirty feet in height, the rings of holes extended from a foot from the base upward for a distance of some twenty feet. The trunk became much swollen and when the tree died, after having been punished by sapsuckers for fifteen years, its diameter, seven feet from the ground, was twenty-five per cent greater than it was a few inches from the earth.

This bird enjoys the sap of a great variety of trees, including pine, apple, cherry, oak, maple, and black gum. However, only the individual tree here and there seems to produce a sap of the exact quality desired by the discriminating sapsucker.

During the colder months this bird's menu also includes many kinds of wild berries, such as those of the dogwood, frost grape, and holly. It is to some extent an insect destroyer.

Genus **DRYOBATES** Boie.

EASTERN HAIRY WOODPECKER.

Plate 31

Dryobates villosus villosus (Linnaeus). [393]

DESCRIPTION. Black above, male with scarlet band on the nape; the middle of the back is white and there are white spots on the wing-feathers; the tail is black except the outer feathers which are white; underparts white. There is a white stripe above and another beneath the eye. Length 9.40; wing about 4.78; expanse of wings about 16.00; tail 3.30.

RANGE. In eastern United States, is found from Canada to North Carolina.

RANGE IN NORTH CAROLINA. In the mountain regions, where it nests.

The Hairy Woodpecker much resembles its well-known relative, the Downy. However, it is somewhat larger and the outer tail-feathers are entirely white and not barred with black. It is more distinctly a forest-loving species than the Downy and does not often come close to the dwellings of man. Also its notes are louder and more businesslike than its smaller relative.

Fig. 76. Hairy Woodpecker.

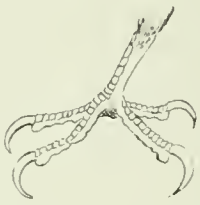


Fig. 77. Foot of Hairy Woodpecker.

This is the variety of the Hairy that, in summer at least, is found in the area that may be roughly designated as our higher mountains. Burleigh writes that he has found it clear to the top of Mount Mitchell and that on May 7, 1930, he examined a nest containing young at an altitude of 5,700 feet.

SOUTHERN HAIRY WOODPECKER.

Dryobates villosus audubonii (Swainson). [393b]

DESCRIPTION. Very similar to the Northern Hairy but slightly smaller and with a little less white. The white underparts exhibit a certain suggestion of dinginess.

RANGE. "Lower Austral Zone of the South Atlantic and Gulf States." (*A. O. U. Check-List.*)

RANGE IN NORTH CAROLINA. Probably eastern half or more of the State.

This is the subspecies of the Hairy Woodpecker with which we are familiar throughout piedmont and eastern North Carolina.

Regarding breeding dates, it may be mentioned that it was found nesting in Cumberland County, May 13, 1917, and April 30, 1933 (Kelly). The nest is excavated by the birds in tall stumps or in the dead limbs of trees.

Hairy Woodpeckers feed largely on grubs, beetles, and wood-boring ants, also they eat wild cherries, wild grapes, and sometimes take a little corn.

☆ New nesting records are from the counties of Bertie, Stanly, Orange and Wake. ☆

NORTHERN DOWNY WOODPECKER.

Dryobates pubescens medianus (Swainson). [394c]

Description. Differs from the Southern Downy Woodpecker only in being slightly larger and in possessing underparts that are more distinctly white.

Range. From Alberta to Newfoundland, and southward to Nebraska and the northeastern States, also in the highlands to North Carolina and Tennessee.

Range in North Carolina. Resident in the mountains and eastward.

The feeding and nesting habits of this bird are virtually identical with those of the Southern Downy. Furthermore, the differences in the size and colors of the two are so slight the observer in the field cannot, under ordinary conditions, distinguish between them. In a general way we have been considering the Northern Downy as a resident of the mountain regions and the Southern Downy as an inhabitant of the rest of the State.

However, recent studies conducted by Alexander Wetmore of the Smithsonian Institution have thrown more light on the subject. The collecting of specimens, carried forward in North Carolina in 1939 by Perrygo, Rohwer, and Wheeler, produced a series of Northern Downy Woodpecker skins from the high mountains eastward through Statesville, Reidsville, and Winton, in Hertford County. These observations, together with other information in his possession, have caused Wetmore to state that his findings "may indicate that *medianus* goes clear across the northern part of North Carolina to the uplands above the Dismal Swamp area."

☆ Add nesting records from the counties of Henderson, Avery and Forsyth. ☆

SOUTHERN DOWNY WOODPECKER.

Plate 31

Dryobates pubescens pubescens (Linnaeus). [394]

Description. Differs from the Hairy Woodpecker only in a smaller size and in having the outer white tail-feathers banded with black. Differs from the Northern Downy by being smaller, darker on the underparts, and the white markings more restricted. Length 6.00; wing 3.50; spread 11.50; tail 2.75.

Range. From North Carolina and Oklahoma to the Gulf Coast.

Range in North Carolina. At least eastern half of the State.

The Downy is the smallest of our woodpeckers and is a friendly little fellow, often seen and heard in the orchards, woodland, and in the shade trees bordering quiet streets. "Little Sapsucker" many people call it. It is often found in company with a group of chickadees, titmice, or in migrating flocks of warblers. If suet is tied to a limb or stake or other feeding station, the Downy will come and feast upon it even if it has to come to your window sill for the delicacy so kindly placed within its reach.

In summer it eats insects and their larvae, and in winter depends to a considerable extent upon wild berries of various kinds. Eggs are laid generally in May and June. In autumn it often digs a hole in a small dead tree or a decayed limb, and uses this for its winter roost. In length this subspecies is about three-quarters of an inch shorter than the Northern Downy.

In reference to the range of this Downy in North Carolina, Wetmore has written us: "The specimens at hand indicate a distribution of this form extending eastward from the valley of the Pee Dee River near the South Carolina State line through Wilson to the northeastern part of the State. It thus covers the entire coastal plain and the eastern section of the piedmont as a breeding bird."

RED-COCKADED WOODPECKER.

Plates 31 and 32

Dryobates borealis (Vieillot). [395]

DESCRIPTION. Back traversely barred with black and white; sides spotted with black; large white patch on each side of head which is very conspicuous in life; a little red patch on each side of back of head in male; underparts white as in other species of the genus. Length 8.40; wing 4.60; tail 3.70.

RANGE. Southern States from North Carolina southward.

RANGE IN NORTH CAROLINA. Eastern portion of the State, rarely straggling as far west as Raleigh, Chapel Hill, Winston-Salem and Statesville.

The male Red-cockaded Woodpecker has a little red spot on either side of the back of its head, hence its name. This is distinctly a species of the pine forests, the extensive destruction of which may well have caused a marked reduction in the numbers of these birds formerly inhabiting the State. The insect food, upon which the bird subsists, is collected from the bark of the limbs and twigs of living pines. Also it invariably excavates the cavity for its nest in a green pine that has a soft center. Above the entrance hole and often for fifteen or twenty feet below, numerous small holes are pecked through the outer and cambium layers of the bark all around the tree, thus causing the turpentine to exude. A sticky and effective barrier against ants and flying squirrels is thus created.

Smithwick collected four eggs in Bertie County, April 29, 1897; H. H. Brimley, Davis, Pearson, and Wray have seen the nests in Brunswick County. H. H. Brimley and Pearson have found them in Onslow and New Hanover Counties; and Davis, Kelly, Pearson, and Wray have all recorded them in Columbus County.

Not infrequently the entrance to a nesting hole is enlarged by Red-bellied Woodpeckers, and the cavities appropriated by them for their own domestic purposes. When Red-cockaded Woodpeckers are using a nest, fresh turpentine is always noticeable on the bark of the tree. Sometimes an old abandoned hole and a freshly made one may be found in the same tree, or in separate trees in the immediate vicinity.

☆ More western records are for Winston-Salem (January) and Statesville (July). ☆

RED-COCKADED WOODPECKER. *Male and Female.*

Genus **CAMPEPHILUS** Gray.

IVORY-BILLED WOODPECKER.

Campephilus principalis (Linnaeus). [392]

Description. Glossy-black; when perched exhibits two broad white stripes extending from just below each eye down the sides of the neck and back to a point near the end of the closed wings. Bill ivory-white. Male with long crest, black in front and red behind; crest of female entirely black. Length about 20.00; wing about 10.00; tail, average 6.50.

Range. Formerly South Atlantic and Gulf States north to southeastern North Carolina; now confined to restricted areas in Louisiana, Florida, South Carolina, and perhaps Mississippi.

This, the largest woodpecker in the United States, is listed here because of a specimen taken by the ornithologist, Alexander Wilson, at some point near Wilmington. The account was given in his book, "American Ornithology," published in 1811, (Introduction, XIX).

This is one of the rarest of North American birds. In *The National Geographic Magazine* for April, 1933, Pearson wrote: "The supreme moment of my life as a bird student came in May, 1932, when, in a primeval forest in northern Louisiana, I saw for the first time a living Ivory-billed Woodpecker." The Louisiana Department of Conservation employed a special warden to guard these exceedingly rare birds. It had been several years since one had been seen by an ornithologist, and when the facts of their presence in Louisiana were made public, other ornithologists naturally sought permission of the State authorities to make studies of these birds. A. A. Allen journeyed to the region and made not only motion pictures of the birds about their nesting hole but also secured sound records of the nuthatch-like "yank" and other notes characteristic of the species. Pearson states that in flight the birds do not progress by a succession of dipping swoops like most woodpeckers, but fly much in the manner of a crow.

George E. Lampry reported on April 18, 1934, that he had seen Ivory-bills in the Santee River swamp in South Carolina. The next spring Sprunt and Lester L. Walsh went to investigate and on May 10, 1935, reported finding a bird. Others have since seen this giant woodpecker in that region, and it is believed that this swamp may be the abiding place of two or perhaps three pairs. The location is only about 70 miles from the North Carolina line.

☆ By 1950 it appeared to ornithologists that this species was on the brink of extinction.

To distinguish this woodpecker, from the smaller Pileated Woodpecker, the white neck stripes continue around the curve of the shoulders to the central back to form a double crescent. A wedge-shaped patch of white wing coverts marks the central back.

In overhead flight this birds shows a broad white band across the back part of the wing and a central irregular black band. In flight the tail shows as a distinct point. ☆

Order **PASSERIFORMES.** The Perching Birds.

This order includes the great majority of the small or medium-sized land birds that are characterized by having the feet four-toed, always three in front and one behind, the latter being on a level with the rest, and with toes never webbed nor reversible. The tail-feathers usually are twelve, and the primary quills are nine or ten.

The Passerine birds regularly found in North America are classified into 24 distinct families, representatives of 21 of which are found in North Carolina. They vary in size from the Golden-crowned Kinglet, slightly more than four inches long, to the Northern Raven, fully two feet in length.

Family **TYRANNIDAE.** Tyrant Flycatchers.

This is distinctly an American family of which more than 400 species and subspecies have been described. They are particularly numerous in the tropics. Their wings are fairly long, legs and feet rather weak; the bill is wide at the base, slightly hooked at the tip, and is furnished with bristles at the gape. In feeding habits they are highly insectivorous.

Of this family, six genera occur regularly in North Carolina, while a seventh, called *Muscivora*, contains two species that may occasionally come within our borders. These are the Forked-tailed Flycatcher (*M. tyrannus*) from tropical America, and the Scissor-tailed Flycatcher (*M. forficata*) of the Kansas, Arkansas, and Texas region. Both have been known to wander far from their usual range. Both have very long outer tail-feathers.

Genus **TYRANNUS** Lacepede.

Rather large flycatchers with concealed crown-patch of red or orange.

EASTERN KINGBIRD.

Plate 33

Tyrannus tyrannus (Linnaeus). [444]

DESCRIPTION. Upperparts grayish slate color, darker on head and upper tail-coverts; head with a concealed orange-red crest, absent in immature birds; underparts white; tail black with a white band at tip. Length 8.00-9.00; wing 4.45-4.75; spread 14.00-15.50; tail 3.40-3.75.

RANGE. United States, east of the Rocky Mountains.

RANGE IN NORTH CAROLINA. Whole State in summer.

The well-known "Bee-Martin" is found throughout the summer in most communities of the State. Its usual perch is on some tall pole, bare limb, or other elevated situation from which it can keep a lookout for passing insects upon which it feeds while on the wing. A red spot on the top of its head is so well concealed by black feathers that it is seldom noticed. There is an old story that the bird uses this at will to lure passing insects to their destruction.

The Kingbird is not among the first summer birds to arrive in spring, but has appeared in Bertie County as early as April 8 (1892, Smithwick); in Forsyth

County, April 11 (1889, R. B. Green); and in Wake County, April 12. Egg-laying has been noted in Cumberland County from May 26 to June 14 according to Kelly; in Guilford County, May 23 to June 4 (Armfield); and in Wake County, May 28 to June 25 (C. S. and H. H. Brimley). The nest is a compact structure of weed stems, grasses, rootlets, moss, cotton, and other conveniently acquired materials, and usually is placed near the end of a limb of a tree standing in the open.

The name "Kingbird" was given to this flycatcher on account of its habit of attacking larger birds and driving them from the neighborhood. H. H. Brimley once saw an infuriated Kingbird attack and ride for about one hundred yards on the back of a Bald Eagle that had alighted to feed on the carcass of an alligator which had been skinned near the Kingbird's nest.

As a rule this bird departs for the south in September, but has been recorded in the State as late as October 5.

☆ Earlier records are for Wilmington (March 27th) and Harnett County (March 10th). A winter record for Wilmington is December 28th. ☆

Gray Kingbird (*T. dominicensis dominicensis*).—The species breeds occasionally as far north as coastal South Carolina and may appear rarely in this State. It is about the size of the common kingbird but its note is distinctly different and it does not have a white band on the end of its tail.

ARKANSAS KINGBIRD.

Plate 33

Tyrannus verticalis Say. [447]

Description. Mostly gray above, including head, neck, and upper breast; the rest of the underparts yellow; tail deep black, the outermost feathers with the outer webs abruptly white. Length 8.00-9.50; wing 4.75-5.25; tail 3.65-4.00.

Range. Western United States. Breeds from Texas and Minnesota westward. Winters from western Mexico to Nicaragua.

Range in North Carolina. A rare wanderer.

Individuals of this western species occasionally come eastward and have been noted in most of the Atlantic Coast States from Maine to Florida. It has been reported only once in North Carolina. E. R. Greene saw one on October 1, 1935, at Lake Mattamuskeet. It was sitting on a telephone wire in company with a common kingbird (*The Auk*, 1936, p. 83).

☆ Added records are Lake Mattamuskeet (November 16th) and Wilmington during the months of April, May, October, November and December. ☆

☆ Genus **MUSCIVORA** Lacepede.

SCISSOR-TAILED FLYCATCHER.

Plate 33

Muscivora forficata (Gmelin). [443]

DESCRIPTION. A pale gray bird with a long scissor-like or deeply forked tail. Head pale gray with a concealed orange-red patch on crown; neck and breast gray; under-

parts of body gray with sides and wing linings with a pinkish tinge; upper surface of tail and wings dusky-blackish with white markings; wings with pinkish-red shoulder patch; tail with upper coverts black; six middle tail feathers black, margined terminally with gray or whitish; tail of male 7 to 10 inches; bill hooked; length 14:00.

RANGE. Breeds from southern Texas to southern Nebraska and southwestern Missouri; occasionally to southwestern Arkansas and western Louisiana. Winters in southern Mexico and Panama. Of accidental occurrence in Manitoba, Illinois, Vermont, New Jersey, Connecticut, Maryland, Virginia, and Florida.

RANGE IN NORTH CAROLINA. Accidental.

Our first record of this bird is one seen at Southern Pines, on April 6, 1953, by Miss Ethel Wooten and Miss Vera Chase. Another one was seen at Chapel Hill on June 12, 1953, by Joe Jones. A specimen was taken at Chocowinity, Beaufort County, on June 27, 1956, by Bob Wolff. ☆

Genus **MYIARCHUS** Cabanis.

NORTHERN CRESTED FLYCATCHER.

Plate 33

Myiarchus crinitus boreus Bangs. [452a]

DESCRIPTION. Olivaceous above with bright chestnut on wings and tail; breast ashy-gray; belly clear yellow; head somewhat puffy but not really crested. Length 7.75-9.00; wing 3.50-4.25; spread 12.00-13.65; tail 3.60-3.75.

RANGE. East of the Mississippi in summer; in winter from Mexico to Panama.

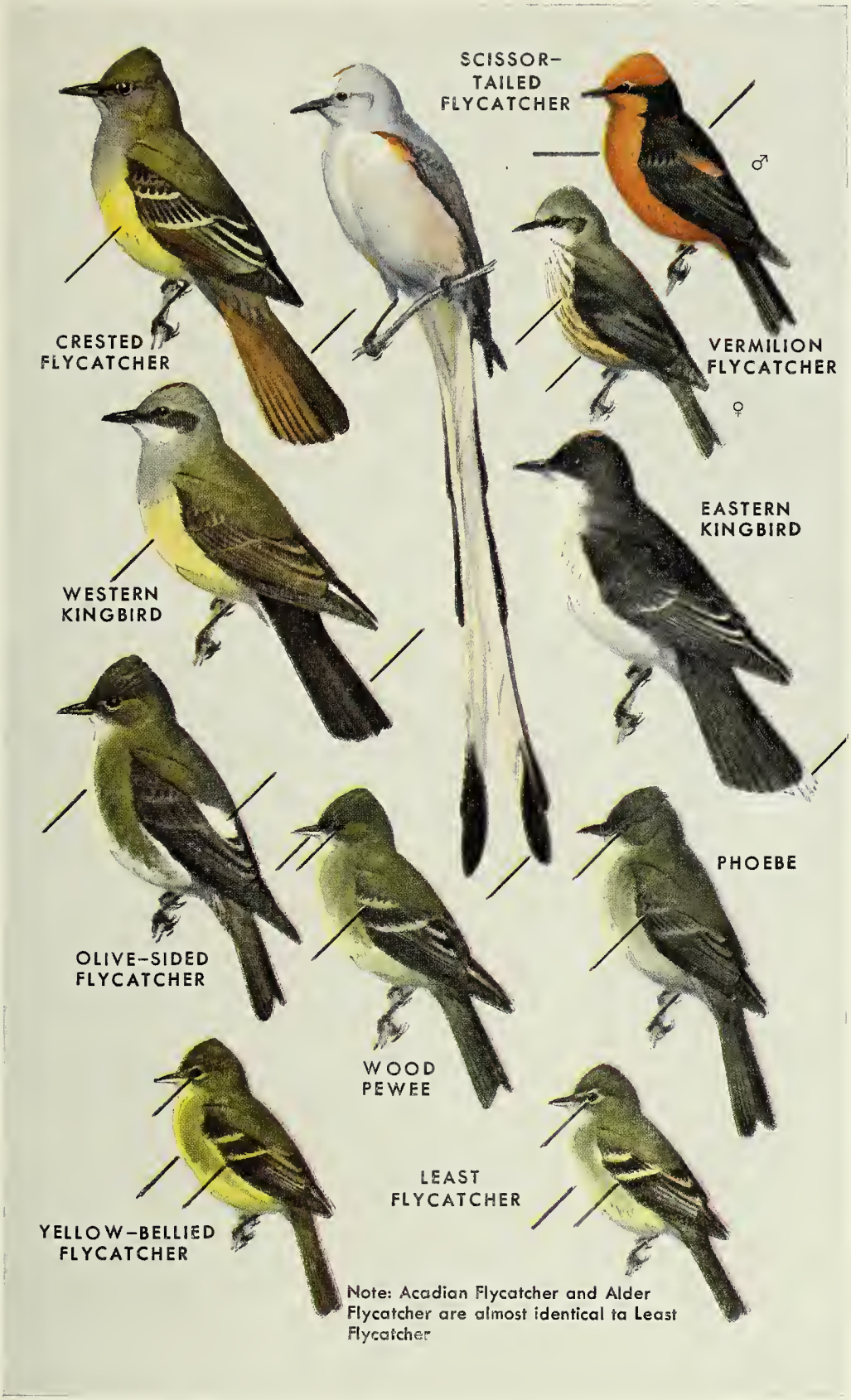
RANGE IN NORTH CAROLINA. Whole State in summer.

The loud calls, whistles, and chatter with which this species fills the groves and forests, together with its vigorous dashes and sailing flights, give one the impression that here indeed is a bird filled with vigor and vitality. It comes from the south with other April arrivals and by its loud strident calls announces its presence. Being a flycatcher, it feeds on insects, but does not seek these about the fields or roadside openings, as does the kingbird. It is a dweller of the forest or groves of large trees.

The nest is built of twigs, grasses, and rootlets. Usually pieces of cast-off snake skin are to be found among the nesting materials. All this collection is placed in the cavity of a tree, either a natural one or one made by a woodpecker. The eggs number four to six and are streaked lengthwise with lines and dashes of purple and dark brown. Kelly in Cumberland County has taken eggs at dates varying from May 19 (1933) to June 3 (1935); Armfield, in Guilford, has found them as late as June 12 (1895); and the Brimleys at Raleigh record them from May 23 to June 23. Our earliest spring record for the bird in North Carolina is that reported by Brown from Salisbury (April 7, 1923). The latest autumn record was made by E. L. Green, Jr., at Cape Hatteras, October 13, in 1935 or '36.

☆ More nesting records are from the counties of Bertie, Lenoir, New Hanover, Nash, Orange, Chatham and Forsyth. ☆

The Southern Crested Flycatcher (*M. c. crinitus*) which ranges from Florida, along the coast to South Carolina, may possibly occur in the Brunswick County region, according to Wetmore.



FLYCATCHERS.

Genus **SAYORNIS** Gray.

EASTERN PHOEBE.

Plate 33

Sayornis phoebe (Latham). [456]

Description. Upperparts grayish-brown; crown, wing, and tail darker; wing bars little evident; underparts white with yellowish tinge; bill black. Length 6.25-7.00; wing 3.25-3.50; spread 10.75-11.75; tail 3.00-3.40.

Range. Breeds from southern Canada to central Texas and the Georgia highlands. Winters from the latitude of Virginia to southern Mexico.

Range in North Carolina. Whole State at all seasons, but not common in summer in the east.

The Phoebe, one of the so-called "pewees," a quiet little flycatcher found especially in open woodlands and about the margins of fields and lakes, is one of the earliest of our small birds to begin nesting activities. The bulky, cup-shaped nest of mud, moss, and other vegetable substances, is stuck on sheltered supports of bridges, upper window ledges of seldom used buildings, and on small shelves of overhanging cliffs. Usually it is lined with dried grasses, feathers, or long hairs. For a few years a pair nested in the side of an old dry well close to a house in Raleigh formerly occupied by C. S. Brimley.

The nests and young are sometimes infested with bird mites, and when such a nest occupies the side of a dwelling, swarms of these parasites may enter the house, thereby causing discomfort to the occupants. The eggs are four or five in number and usually are unspotted. We know of eggs being found at Raleigh as early as April 20. At Taylorsville, in Alexander County, Bruner found young as late as June 22 (1909). Of its occurrence in the Mount Mitchell region, Burleigh reported (MS): "Common breeding bird in the valleys, rarely observed above 4,000 feet elevation." Usually it is highly insectivorous, but in winter various berries are regularly consumed.

Genus **EMPIDONAX** Cabanis.

This genus contains small flycatchers, none as large as a Wood Pewee. All similar in general appearance, but their notes, movements, and breeding habits are quite different.

YELLOW-BELLIED FLYCATCHER.

Plate 33

Empidonax flaviventris (Baird and Baird). [463]

Description. Rather dark olive-green above, sulphur-yellow below; the wings and tail dusky. In any plumage the entire underparts, including the throat, are pale-yellow, while in the other eastern species of this genus the throat at least is white. Length 5.65; wing 2.65; tail 2.15.

Range. Breeds from British Columbia and Newfoundland south to northern Pennsylvania; winters from southern Mexico to Panama.

Range in North Carolina. A migrant, thus far known to occur in this State only in the autumn.

Cairns collected, and thus positively identified, a female Yellow-bellied Flycatcher in Buncombe County on August 11, 1890.

To Burleigh we are indebted for further observations of this little-known bird in the Asheville region and are pleased to be able to quote from his notes as follows: "Although considered a rare migrant in the State, my records would indicate that this species is of regular occurrence in the fall and possibly is more plentiful than is generally realized.

"It is invariably quiet and inconspicuous, and so similar in appearance to the other small flycatchers that it undoubtedly has been overlooked. My records, based in each case on specimens taken, are as follows: a male October 6, 1930, male September 28, 1931, female October 1, 1932, and a female taken on August 28, 1934, and another procured September 5, 1934."

In the field it is difficult to distinguish this bird from some of the other small flycatchers although usually more yellow is noticeable on the underparts than can be detected on the breast and sides of the Acadian and the Alder, with which it is often confused. Like those species also, it is usually silent during migration and its small plaintiff note often heard in the far northern woods in spring is here no longer given.

Similar to others of its tribe, it feeds upon small flying insects captured during short, sudden flights from its perch on some twig which at the moment it chances to be using as a lookout post.

☆ Four new records are for Highlands (August 14th), Doughton Park (September 15th), Raleigh (April 30th) and Elkin (May 4th). ☆

ACADIAN FLYCATCHER.

See Note on Plate 33.

Empidonax virescens (Vieillot). [465]

DESCRIPTION. Olive-green above; white below, the underparts often tinged with pale-yellow, but the throat always white; wings with two distinct yellowish wing bars. Length 5.75; wing 2.85; spread 8.85-11.15; tail 2.35.

RANGE. Breeds from Ontario to Florida and Texas; winters in northern South America.

RANGE IN NORTH CAROLINA. In summer, eastern and central districts, also in the mountain valleys.

The Acadian Flycatcher is the only one of its genus that is generally common in North Carolina. It arrives in the State after its winter sojourn in the far South some time in April and departs again in September. For example, Burleigh recorded its appearance in Asheville on April 29, and last saw it in autumn on September 12.

The nest is a shallow, saucer-shaped structure, attached at the edges to the fork of a low-hanging limb of a beech, dogwood, or other favorite tree. It is a frail, light structure—so thin, in fact, that the eggs may frequently be seen through the bottom of the nest from the ground below. The rim of the nest is contracted, thus preventing the contents from rolling out. As a rule, the eggs are three in number. They are a light creamy color and are ornamented with reddish-brown spots, often forming a wreath near the larger end.

This bird's characteristic note is an explosive *chip* or *chup,* uttered when it is at rest. Usually the sound is accompanied with a jerk of the tail. Often it produces a noise with its wings when flying from one perch to another. Its favorite haunts are dense woods, especially those bordering streams. Eggs were found at

Greensboro by Armfield from May 21 to June 9; by Kelly in Cumberland County from May 27 (1934) to June 10 (1928); and by the Brimleys, at Raleigh, from May 23 to June 25. The earliest date we have for the spring arrival of the Acadian Flycatcher is for Statesville, April 18 (McLaughlin), and the latest autumn record is September 23 at Chapel Hill (Odum).

☆ An early date is for Raleigh (April 4th) and a later date is for Wilmington (September 28th). ☆

ALDER FLYCATCHER.

See Note on Plate 33.

Empidonax trailli trailli (Audubon). [466a]

Description. Olive-brown, above, whitish beneath with a tinge of gray on the breast and of yellowish on belly; wing bars white or whitish. Length 5.35-6.00; wing 2.65-2.85; spread, about 9.00; tail 1.75-2.25.

Range. Canada to West Virginia; winters from Yucatan to Ecquador.

Range in North Carolina. A transient, not commonly seen.

The Traill's, or Alder Flycatcher, resembles the Wood Peewee more than the other small flycatchers, but, besides being smaller, it possesses wings decidedly shorter and legs that are distinctly longer. Thus far, it has been found in North Carolina only during the spring and fall migrations. Four times it has been taken at Raleigh and seven specimens have been collected in the Asheville region. The Raleigh birds were collected by the Brimleys, who give the following dates for their capture: May 14, 1892; May 16, 1893; September 21, 1893; and August 21, 1898. In the Asheville region Cairns took a specimen some time in September, 1889.

After the above records more than thirty years seem to have elapsed before the Alder Flycatcher was again observed in North Carolina. Then Burleigh rediscovered, in a way, the presence of the bird in Buncombe County. He secured a specimen on each of the following dates: September 1 and 17, 1930; and April 27, August 20, September 9, and September 29, 1932.

It is unlikely that it will ever be found breeding in North Carolina, unless perchance in some of the higher mountains. The nest is said to be cup-shaped, well-made, and usually placed in a fork where two twigs leave the main stem of some small tree or bush. The eggs do not materially differ in appearance from those of the preceding species. The bird is partial to alder thickets growing along streams, where it sits quietly on a perch watching for passing insects it may dash out and capture.

LEAST FLYCATCHER: CHEBECK.

Plate 33

Empidonax minimus (Baird and Baird). [467]

Description. Upperparts olive or olive-brown; wings and tail fuscous, the former with two whitish bars; underparts whitish. It may be noted here that in this species and the two preceding, the underparts and wing bars are usually more tinged with yellow in fall or immature birds than in summer adults. Length 5.40; wing 2.50; tail 2.20.

Range. Breeds from Canada to mountains of western North Carolina; winters from northern Mexico to Panama.

RANGE IN NORTH CAROLINA. Mountain region in summer.

This, our smallest flycatcher, is a regular summer visitor in portions of the mountain country, but our knowledge of its numbers and its distribution is quite limited. In May, 1885, Brewster found it scarce but generally distributed in parts of Buncombe, Haywood, Macon, and Jackson Counties. Cairns regarded it as rare in Buncombe and, in his years of observation in that region, found only one nest. Rhoads discovered it breeding on Roan Mountain. C. S. Brimley took one near Highlands, Macon County, May 9, 1908. Sherman collected one and saw others in June, 1920, at Linville Falls. Miss M. A. Boggs sent a nest from Waynesville to the State Museum, June 13, 1922. Two birds were reported at Sunburst, Haywood County, on June 14, 1934, by G. E. Hudson. The earliest spring arrival of which we have knowledge was noted at Highlands by C. L. Boynton on April 24, 1886. Wetmore reports the species at Hayesville and Boone in June and July, 1939.

This species is less of a forest-loving bird than others of the genus. The nest is a compact, cup-shaped structure, placed in an upright fork of a small tree, from five to twenty feet from the ground, sometimes in gardens or orchards. The eggs are white and usually are unspotted.

Burleigh writes of his observations of this species at Asheville as follows: "This little flycatcher is not common here during the summer months. It is rather local in its distribution, and limited largely to open woods bordering on streams. It usually appeared the latter part of April and lingered in the fall until the end of September, my extreme dates of occurrence being April 28 (1931) and October 8 (1930)."

☆ New Piedmont records are for Greensboro (May 2nd and 4th) and Winston-Salem (May 3rd). Another nesting record is for Pineola (May 13th). ☆

Genus **CONTOPUS** Cabanis.

EASTERN WOOD PEWEE.

Plate 33

Contopus virens (Linnaeus). [461]

DESCRIPTION. Olive-brown above, paler below; known from other small flycatchers by the short legs and long wings, as well as by the characteristic notes which may be represented by *pee-wee,* or *pee-du-wee.* Length 5.80-6.40; wing 3.00-3.50; spread 9.75-11.50; tail 2.40-2.75.

RANGE. Breeds from southern Canada to central Florida. Winters in Central and South America.

RANGE IN NORTH CAROLINA. A very common summer resident throughout the State.

We regard the Wood Pewee as the most common and perhaps the most generally distributed flycatcher in the State. It arrives in April, our earliest records of its first appearance in six of the counties being as follows: Wake, 21; Orange, 22; Bertie, Iredell, and Cherokee, 23; and Buncombe, 26. Dates of egg-laying in Cumberland County, according to Kelly, run from May 22 (1933) to July 10 (1914). Breeding records from other points in the State all fall within this range

of dates. The last date in autumn, when the species has been observed, was at Raleigh, October 26 (C. S. Brimley).

The comparatively flat nest, composed mainly of fine grasses, rootlets, and sometimes moss, is carefully covered with lichens. It is saddled on a substantial limb of a living tree at a considerable distance from the ground. The eggs, usually three, are white with obscure brown markings about the larger end. The snap of its bill is audible, as flycatcher-like, it darts from its perch to catch passing insects. After each dash afield, it usually returns to the perch from which it has flown. Pearson recorded that a Wood Pewee on the campus of Guilford College apparently captured thirty-six insects in a period of five minutes.

☆ An earlier date is for Raleigh (March 22nd) and a late date is for Lake Mattamuskeet (December 29th). ☆

Genus **NUTTALLORNIS** Ridgway.

OLIVE-SIDED FLYCATCHER.

Plate 33

Nuttallornis borealis (Lichtenstein). [459]

Description. Slaty-brown above with darker streaks; middle line of belly distinctly and abruptly white, otherwise grayish below; a conspicious tuft of cottony white feathers on each side of rump, usually concealed by the wings. Length 7.50; wing 4.25; tail 3.00.

Range. Breeds from Alaska to Mexico and from New Jersey to western North Carolina.

Range in North Carolina. Portions of the mountain region in summer.

The Olive-sided Flycatcher is quite a rare bird. In this State it has been recorded from Highlands, where Brewster found it late in May, 1885, settled down and apparently preparing to breed. (*The Auk*, January, 1886, p. 105.) C. L. Boynton records it as nesting in the same region, the birds having been first seen on April 25. Cairns states that it bred on the Black Mountains in Buncombe County, and says it was first observed near Weaverville, April 19, 1886. Rhoads in 1895 saw one on Roan Mountain.

The nest resembles that of the Wood Pewee, though larger. It is saddled on the horizontal limb of some pine, spruce, hemlock, or other conifer, usually at a considerable height from the ground. The eggs are commonly three in number, laid in June or early July, and in color much resemble those of the Wood Pewee. They measure about .80 x .60.

Family **ALAUDIDAE.** Larks.

This is a family of Old World birds represented in America by two genera. The single species of the genus *Otocoris* is divided into sixteen subspecies, two of which have been found in North Carolina. The bird most commonly called "Lark" in this State, namely the Meadowlark or "Field Lark," belongs to another family and is in no sense a lark.

Genus **OTOCORIS** Bonaparte.

NORTHERN HORNED LARK.

Otocoris alpestris alpestris (Linnaeus). [474]

DESCRIPTION. Pinkish-brown or gray above, and white beneath with a black crescent on the breast and a tuft of lengthened black feathers on each side of the occiput forming the "horns"; forehead yellowish, bordered behind by a black bar which extends backward on the sides of the crown and is bordered below by a broad superciliary yellow stripe which is continuous with the light color of the forehead. There is also a black band backward from the base of the bill to, below, and beyond the eye. In winter, the head and breast markings are much obscured by the lighter tips to the feathers and the plumage is less bright. The colors of the female are duller and the characteristic markings are much less distinct. Male: length 7.00-7.50; wing 4.20-4.60; tail 2.60-2.80; female: length 6.60-7.25; wing 3.20-4.20; tail 2.20-2.75.

RANGE. Breeds in eastern Canada; winters south to Georgia and Ohio Valley.

RANGE IN NORTH CAROLINA. Irregularly present in winter.

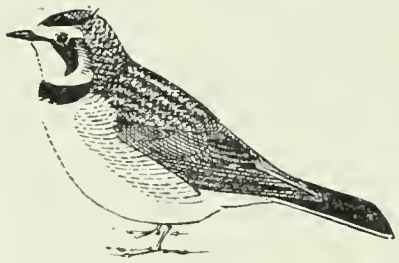


Fig. 78a Horned Lark

Fig. 78b. Horned Lark

Horned Larks are with us only during the winter months. They are birds of the open fields, both in the neighborhood of the coast and in the interior of the State. Do not expect to find them in trees, but look for them only on the ground in open areas or in the air. They travel in scattered flocks. The two subspecies found with us bear such a general resemblance that we feel justified in mentioning only those records that have been substantiated with specimens taken and identified in the hand.

Of the Northern Horned Larks, three were taken at Pea Island by Bishop, February 7 and 8, 1901; others by the Brimleys at Raleigh, December 7-17, 1886, January 13 and 14, 1887, and February 20, 1895; at Lake Mattamuskeet, Earle Greene found the body of one January 31, 1936; at Kitty Hawk, Burleigh took a specimen January 17, 1931, and at Asheville found them between November 27 and February 20. It may be seen that all records for this lark thus far were made from November to February.

☆ Thirty-nine new records confirm the above and extend the spring records to March 20th (Henderson). ☆

PRAIRIE HORNED LARK.

Otocoris alpestris praticola Henshaw. [474b]

Description. Similar to Northern Horned Lark but slightly smaller, and is lighter above. A very distinctive mark is the line over the eye which in the Prairie Horned Lark is white instead of yellow.

Range. Breeds in Kansas and eastward; winters south to Texas and Georgia.

Range in North Carolina. A winter visitor; also breeds sparingly.

Of the Horned Larks we see in winter perhaps a large share belong to this subspecies. Once they bred only on the prairies of the central and western States, but with the destruction of forests they have spread eastward, even to Long Island, New York. Also of late they have been breeding farther south. Murray and Grey found four nests near Lexington, Virginia, in 1934. The same year another nest was found at Naruna, in southern Virginia. Then on April 13, 1937, a nest with young was discovered by N. G. Hairston on a golf course at Lexington, North Carolina. In 1940, Grace Anderson examined two nests with young in Iredell County, one on June 17, the other July 12. Craighill found a nest with three eggs on the grounds of the airport at Rocky Mount, April 17, 1941.

Other records of birds found in the State are: One shot by Burleigh, at Salvo, Dare County, January 17, 1931; specimens taken by the Brimleys at Raleigh in 1887, 1893, 1895, 1918, 1938, 1940, and 1941, at dates ranging from December 7 (1887) to February 20 (1895); and one reported by Wetmore in Watauga County, July 11, 1939. Burleigh reported them only in winter at Asheville.

☆ Nine new nesting records include one at Blowing Rock and three at Asheville. ☆

Family **HIRUNDINIDAE.** The Swallows.

Swallows are slender birds with pointed wings, short bills, and a wide, deep gape to the mouth. They capture the insects, upon which they feed, while cruising through the air. Considerably more than one hundred kinds of swallows are known throughout the world. Of these, ten are found regularly in the United States, six of which are included in the avifauna of North Carolina.

All swallows are particularly useful to mankind. In every community where they are found they destroy immense numbers of gnats, flies, plant lice, codling moths, and mosquitoes. When such birds are seen flying low over open grounds, they may well be engaged in gathering moths that lay eggs which produce grubs that feed on the roots or the foliage of the clover, grass, vegetables, and fruit trees in the neighborhood.

More than once we have noted swallows flying and circling about us as we made our way through high meadow grasses. They were alertly capturing the insect life which our passage had caused to take wing. Swallows at times also consume a little wild fruit such as barberries and sumac. These birds are rigidly protected by the laws of our State as well as by Federal statutes and regulations.

No bird of this group can be said to produce much of a song. The twitters of all the species are rather harsh, but nevertheless they help produce a decidedly cheerful atmosphere in the countryside.

Genus **IRIDOPROCNE** Coues.

TREE SWALLOW.

Plate 34

Iridoprocne bicolor (Vieillot). [614]

DESCRIPTION. Lustrous blue-green above, pure white beneath. Length 5.50-6.00; wing 4.50-4.85; spread 12.50-13.15; tail 2.20-2.50.

RANGE. Breeds from northern Alaska to Virginia. Winters from North Carolina to Cuba and Honduras.

RANGE IN NORTH CAROLINA. Common spring and autumn migrant; winters to some extent in the coastal region.

This pretty little ranger of the sky may be known from other members of the swallow family by its distinctive white underparts—"White-bellied Swallow" it is called in some places. In the States lying to the northward of North Carolina, there are many regions where these birds breed. Their nests, composed of feathers and dried grasses, are usually constructed in the holes of trees.

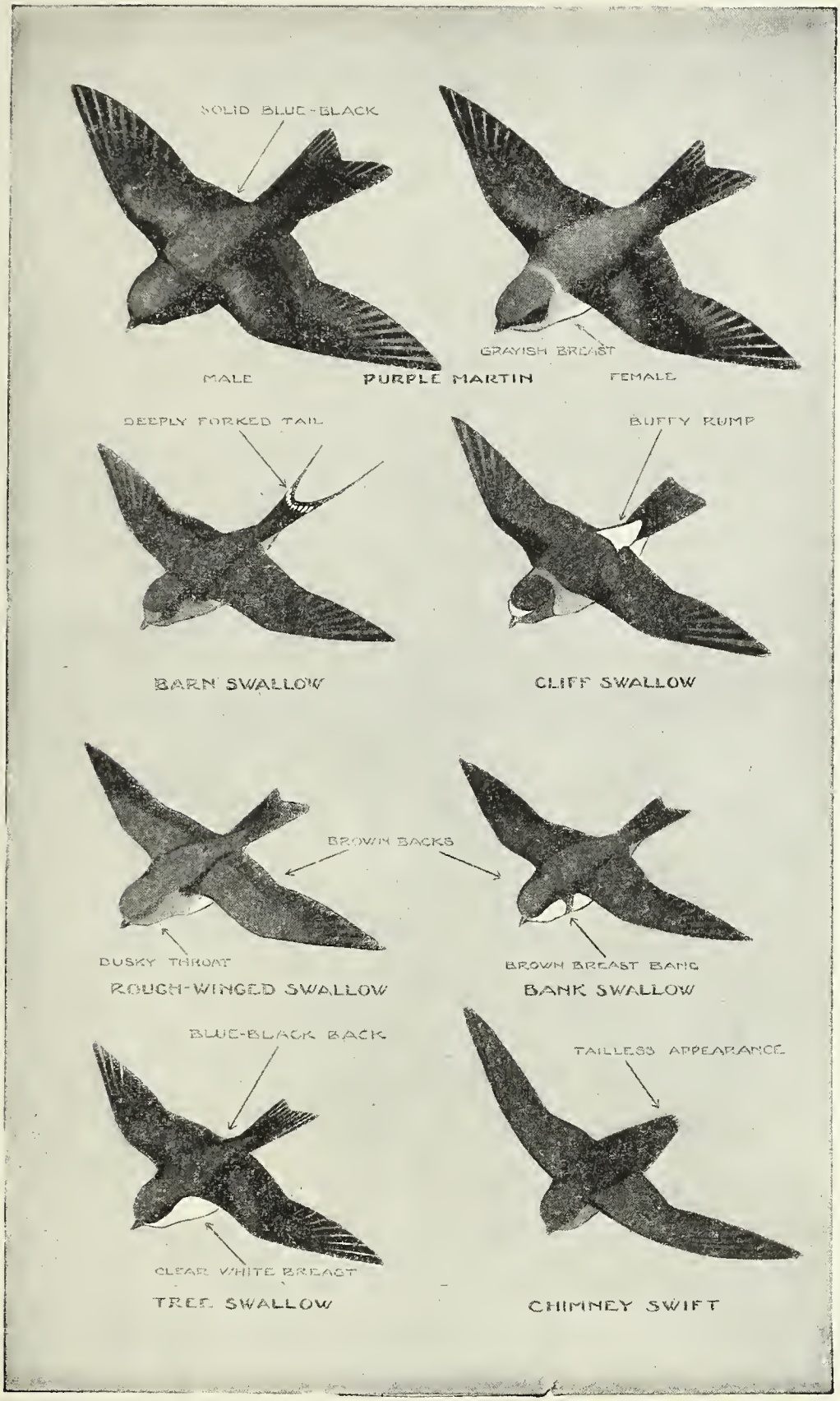
. . . . . .

After a very brief breeding season, Tree Swallows soon gather into flocks. By early July great numbers are assembling at night to roost in the reeds and tall grasses of some marsh. Then not long afterward, when the late broods are strong upon the wing and have joined the others, the autumn movement southward begins. Always the birds travel by day. We know of some reaching North Carolina by August 9 (1938), for on that date several were seen by H. H. Brimley at Pea Island. By the middle of September the bulk of the Tree Swallows have passed on for more southern regions.

It appears that only in the immediate neighborhood of the coast do any of them tarry for the winter. Coues said there were some about Fort Macon from January 11 until April, 1870. C. S. Brimley saw some at New Bern "late in January, 1885." Samworth reported a flock in Onslow County, January 20, 1936; E. R. Greene, writing of them at Mattamuskeet Lake in 1934-36, said: "Common winter resident, August 18 to May 14. Abundant during migrations, April and September." (*The Chat*, 1937, p. 55.)

Although, thus far, there appears to be no record of these birds breeding in North Carolina, Pearson, on April 16, 1898, near Fairfield, in Hyde County, witnessed the movements of two Tree Swallows that seemed to be of special interest. Over and over, for half an hour, they busied themselves flying about a dead tree on which they repeatedly perched and engaged in examining an old woodpecker's hole. Three days later at Cape Hatteras, in a scattering stand of dead trees, other Tree Swallows were seen inspecting holes as if looking for nesting sites.

In the interior of North Carolina, Tree Swallows have been reported during migration at White Lake, Raleigh, Chapel Hill, Asheville, and various other points.



Courtesy of Roger Tory Peterson

☆ Earlier records are for Wilkesboro (March 1st), Newton Grove (March 15th) and Wilmington (March 22nd), and as late as May 13th (Pineola). ☆

Genus **RIPARIA** Forster.

BANK SWALLOW.

Plate 34

Riparia riparia riparia (Linnaeus). [616]

DESCRIPTION. Brownish-gray above; underparts white with a *brownish-gray band across the breast.* Length 5.20; wing 3.95; spread 10.75; tail 2.00.

RANGE. Breeds from northern Alaska to California and Virginia; winters in South America.

RANGE IN NORTH CAROLINA. Rare transient.

The real Bank Swallow, the one whose musical, scientific name, "ri-par-ia, ri-par-ia, ri-par-ia," is so strongly reminiscent of the song of the Carolina Wren, is known to few people in this State. We have a swallow that digs a burrow for its nest in a sandbank, but it is the Rough-winged Swallow. Both species are dark brownish-gray birds, not particularly striking in appearance and at a little distance appear to be very much alike.

The student who would learn to distinguish them should watch them very closely, keeping in mind the following facts: First, in a good light see if the swallow you are watching is distinctly brownish on the back; if this proves to be the case, see if there is a dark band across the white breast. If there is, then indeed, you are looking at a Bank Swallow. If there is no dark band across the breast, you have circling around you the more common Rough-winged Swallow.

Bank Swallows breed in colonies throughout much of central and northern North America, but in North Carolina we know them only as occasional travelers passing through in spring and autumn.

Our records of their positive identification are not numerous, being, in fact, some ten in number. These include the observations of Cairns at Weaverville, in 1891; H. H. and C. S. Brimley at Raleigh, April 24. 1888, and August 8, 1896; S. E. Simpson at Lake Ellis, August 9, 1920; Odum at Chapel Hill, April 27 and May 12, 1932; Joe Biggs at Washington, May 15 and 16, 1935; and Grey at Raleigh, April 27, 1938.

☆ Twelve records are added from Raleigh and westward to Yancey County. ☆

Genus **STELGIDOPTERYX** Baird.

ROUGH-WINGED SWALLOW.

Plate 34

Stelgidopteryx ruficollis serripennis (Audubon). [617]

DESCRIPTION. Above plain grayish-brown; throat and breast pale brownish-gray; belly white. Length 5.00-5.75; wing 4.00-4.70; spread 11.25-12.35; tail 2.05-2.35.

RANGE. Breeds from southern Canada to southern Mexico; winters from Mexico to Costa Rica.

RANGE IN NORTH CAROLINA. A summer resident only.

An explanation of the chief field marks by which this bird may be identified is given under the discussion of the preceding species. The bird receives its descriptive, English name from the fact that the outer wing quill is "rough." To explain further, the outer web of the first primary is edged with a series of little backward turning hooks, that are rough to the touch. The adult males and some females have this unusual, characteristic feather formation.

The Rough-winged Swallow, commonly called "Bank Swallow" with us, is a summer resident in North Carolina, but its presence in any given region during the breeding season depends largely on the availability of nesting sites. It is an early spring arrival from the south, our first spring record for the season being March 25 (1893), in Bertie County. It departs again shortly after the breeding season, the latest recorded observation being on July 27, in Bertie County.

This species nests in holes in banks which it excavates for the purpose. Now and then several pairs breed closely together. The burrow generally runs back for two or three feet, terminating in a saucer-shaped depression, which is carefully lined with dry grass and feathers. Railway cuts, the sides of sand pits or steep banks of streams furnish suitable situations. There are records in other States of nests having been found in cracks or crevices in the brick or stonework of dams or bridges. Now and then these birds nest in a Kingfisher's burrow which they calmly appropriate for their own use.

Kelly took eggs in Cumberland County on May 9, May 19, and June 3; and G. Pearce found eggs in the same region on June 21 (1930). The Brimleys report eggs laid at Raleigh, May 15 to June 12. Pearson found a nest in a railroad cut in Gates County, in June, 1892.

☆ New dates are March 16th (Raleigh) and August 16th (Yancey County). Nesting west of Raleigh was found at Charlotte, Elkin, Montreat, and scores of nests in the Blue Ridge Parkway tunnels and highway structures and cliffs in Transylvania and Macon counties. ☆

Genus **HIRUNDO** Linnaeus.

BARN SWALLOW.

Plate 34

Hirundo rustica erythrogaster Boddaert. [613]

Description. Lustrous steel-blue, buffy below; forehead and throat deep chestnut; outer tail-feathers spotted with white, under tail-coverts rufous; tail deeply forked. Length 5.85-7.60; wing 4.50-4.95; spread 12.25-13.00; tail 2.20-4.15.

Range. Breeds from Alaska to Mexico and in the East to North Carolina; winters from Mexico to Brazil.

Range in North Carolina. Mainly transient; breeds locally in the mountains and along the coast.

This is the only North American swallow having a real "swallow tail." It is a common migrant during the greater part of April and May and in August and the first half of September. Often it flies in large flocks, particularly over marshy ground or open water, and not infrequently appears in company with other species of the family.

Although the bulk of the Barn Swallows seen in North Carolina are migrants, we have several breeding records for the State. At Wrightsville Beach, Pearson located two nests with young in June, 1898. These were under the eaves of a veranda at a summer hotel. On Pine Island, Currituck County, Burleigh counted twelve nests on supports under a boat landing, May 20, 1932. At Nags Head, Pearce found nests July 4, 1935; and at the same place H. H. Brimley saw a nest with young, August 3, 1937. H. H. Brimley and Pearson visited a breeding colony in an old boathouse at Hatteras Inlet, in June, 1939. They breed regularly on Pea Island. The most southern breeding record on the Atlantic Coast was made by Davis, Grey, and Pearson on June 9, 1939, when they examined a nest with freshly laid eggs under a bridge that crosses the Inland Waterway a few miles below Southport.

Inland, Sherman discovered a pair nesting in a barn at Valle Crucis, Watauga County, in June, 1909; Metcalf saw Barn Swallows at Mount Airy, June 6-8, 1911.

The bowl-shaped nest, made of mud and lined with feathers, is placed on a rafter or other similar support. The eggs are white, spotted with reddish-brown, chiefly near the larger end; size .75 x .55. Four to six are laid.

☆ An early arrival date is March 28th and a departure date of November 10th (both Pea Island). A winter record of 15 is for Wilmington (December 28th). ☆

Genus **PETROCHELIDON** Cabanis.

NORTHERN CLIFF SWALLOW.

Plate 34

Petrochelidon pyrrhonota pyrrhonota (Vieillot). [612]

DESCRIPTION. Lustrous steel-blue; forehead, sides of head, throat, and rump different shades of chestnut; a blue spot on breast; belly whitish. Tail *not* deeply forked. Length 5.00-6.00 wing 4.00-4.50; tail 2.00-2.20.

RANGE. Breeds in Canada and much of the United States except southeastern States. Winters in South America.

RANGE IN NORTH CAROLINA. Transient, apparently State-wide.

When in the air, this species much resembles the Barn Swallow, except that the tail is neither as long nor as deeply forked. Colonies of fifty or more pairs may build their mud, bottle-shaped nests under the eaves of a single barn or other building. In central North Carolina, the bird is known only as an uncommon migrant. At Raleigh, the Brimleys, Grey, Lay, M. Martinet, Sherman, and Snyder found it only in spring between April 7 and May 23, during the years 1889-1940. Sprunt, in 1930 and '31, recorded it in Watauga and Buncombe Counties between August 5 and September 12. Odum speaks of it at Chapel Hill, on September 10 and 12, 1933. Writing of the birds of Mount Mitchell, Burleigh stated:

"Of decided interest was the occurrence of Cliff Swallows in August feeding throughout each day high over the top of the mountain. Although to one familiar with swallows feeding low over open fields and pastures these birds

seemed rather out of place at an altitude of 7,000 and 8,000 feet, nevertheless they were a characteristic feature of bird-life of Mount Mitchell at that time of year. Countless thousands gather each summer at certain spots in the valleys far below, roosting at night in cornfields and scattering far and wide during the day, so possibly their presence here might be more or less anticipated. Extreme dates at which flocks varying from fifteen or twenty to fully a hundred individuals were seen are August 4 (1931) and September 1 (1932)."

Genus **PROGNE** Boie.

PURPLE MARTIN.

Plate 34

Progne subis subis (Linnaeus). [611]

Description. Male: lustrous blue-black above and below; wings and tail duller. Female: duller; underparts grayish; belly white. Length 7.50-8.00; wing 5.15-6.00; tail 2.50-3.15.

Range. In summer, central and eastern Canada south to Mexico and the Gulf Coast. Winters in Brazil.

Range in North Carolina. Whole State in summer.

Purple Martins are extremely popular birds in North Carolina. All farmers know of their usefulness in guarding chickens from the attacks of hawks and crows. Hence, nesting accommodations are provided in many communities and throughout the State thousands of martin boxes and tens of thousands of gourds are erected on poles near farm houses as inducements to these birds to colonize near at hand.

While on a bird-study expedition in Brunswick County, early in May, 1939, C. S. Brimley, Davis, Grey, Pearson, and Wray noted that near the houses of at least half the farms they passed one or more poles had been erected from the cross-arms of which gourds were suspended. The gourds displayed ranged in number from four to twenty. The cheerful twitterings of the contented tenants were constantly heard, and now and then a bird was seen returning with that characteristic direct flight which long ago gave rise to the well-known southern expression, "Straight as a martin to its gourd."

These birds are with us only in summer. Dates of their first arrival in spring for four localities are as follows: Buncombe County, March 5, 1931 (Burleigh); Bertie County, March 15, 1894 (Smithwick); Wake County, March 16, 1907 (C. S. Brimley); Beaufort County, March 14, 1935 (Biggs); and Cape Hatteras, Dare County, March 24 (E. L. Green, Jr.). The nests are composed of leaves, straw, and other dry vegetable materials sometimes with the addition of mud. Four or five pure white, unspotted eggs are laid. These generally are deposited during the last half of May.

After the nesting period, martins gather in nightly roosts for some weeks before beginning their autumn migration. These great congregations have taken place in groves in Mount Airy, Wrightsville, and elsewhere. Pearson estimated 200,000 occupying a favorite roost in the shade trees of a lot in Greensboro one summer. Our latest autumn record of a martin seen in the State is from Raleigh, the date being September 15, 1937.

☆ It appears that these post-nesting congregations incline to roost on a long bridge over Albemarle Sound, near Edenton. They were disturbed by night traffic and were killed in such large numbers as to litter the roadway. ☆

Family **CORVIDAE**. Crows and Jays.

This family comprises the largest of our *Passeriformes*, and is characterized by a rather long but stout bill with the nostrils covered by small, stiff, forwardly projecting feathers. It is divided into two groups, the jays and the crows. The jays have the wings not longer than the tail, bluish or gray plumage, and markings on the wings and tail, the crows have the wings longer than the tail and usually black in color.

Genus **CYANOCITTA** Strickland.

NORTHERN BLUE JAY.

Plate 44, Fig. 2

Cyanocitta cristata bromia Oberholser. [477]

DESCRIPTION. Head crested; plumage blue above and white beneath with a black crescent across the breast, this extending up on each side of the neck across the back of the head; wings spotted with black and white; tail-feathers except the middle pair tipped with white, the white on the outer one usually an inch or more in length. Length about 11.70; wing 5.35; tail 5.35.

RANGE. North Carolina to the southern Canadian provinces.

RANGE IN NORTH CAROLINA. Confined to mountain regions so far as known.

This is a northern form of the Blue Jay that may winter generally in the State, and which is regarded by some as resident in the mountain regions.

The opinion of technical experts differ as to whether this bird breeds in this State. Burleigh has written that the Northern Blue Jay at Mount Mitchell is not known to breed above 4,500 feet elevation and that it "is of casual occurrence in summer, appearing in small, noisy flocks in the fir and spruce woods at the top of the mountain from early July until October."

Oberholser listed a specimen taken July 11, 1895, on Roan Mountain as being of this northern form. Wetmore, who has examined this specimen, which is preserved in the National Museum, tells us that it "is a young female only recently from the nest with the juvenile plumage only partly replaced by first fall dress. I am," he adds, "inclined to believe that it might be more properly considered an intermediate," between the Northern Blue Jay and the Florida Blue Jay. Wetmore wisely remarks that further study with the aid of additional specimens will be necessary to determine definitely the status of the Northern Blue Jay in North Carolina.

FLORIDA BLUE JAY.

Plate 44, Fig. 3

Cyanocitta cristata cristata (Linnaeus). [477a]

Description. Similar to the preceding but averaging smaller, with the white on the outer tail-feather less than an inch in extent. Length about 11.15; wing 5.05; tail 5.05.

Range. North Carolina southward.

Range in North Carolina. Apparently occurs throughout the State.

The handsome blue jay, known to many as the "Jaybird," is found in all wooded regions of the State. It is particularly common among the shade trees of towns and cities. Its blue, black, and white plumage renders it one of our most conspicuous feathered neighbors.

Jays breed in April and May, building the nests of twigs, leaves, roots, rags, cotton, wool, or other materials. It is a large and rather untidy structure, placed often in small trees, but more frequently in large ones. The eggs are four or five in number, olive-brown in color, thickly spotted with darker shades, and measure about 1.10 x .85. When in the neighborhood of its nest, this bird usually is silent and moves through the trees with quiet alertness and stealth.

Its loud, hilarious notes are well-known to all. It has a wide range of calls, one of which strongly suggests the common cry of the Red-shouldered Hawk. It enjoys a great variety of food, which includes acorns, berries, and sometimes the eggs and young of other birds.

Until recently it has been considered that the jay commonly found in this State was *C. c. bromia* (Northern Blue Jay) and we so listed it in the first edition of this book (1919). Careful studies of late have revealed that the common jay with us is the Florida subspecies as indicated above. Alexander Wetmore has supplied us with the following statement:

"Specimens of the blue jay were taken at the following localities (in 1939): 4,500 feet elevation on Rocky Ridge, 13 miles west of Franklin, June 22; Catawba River, 7 miles west of Statesville, September 29 and 30; 7 miles southeast of Rockingham, May 31; near Reidsville, September 20 and 25; Roseboro, May 8; Bethel, November 1; and Southport, May 11.

"This entire series of 15 skins is identified as the southern form, both in size and color, so that apparently this is the breeding bird throughout most if not all of the State. . . . The birds seen are definitely dark in color above, with restricted white markings on the wing."

In *The Auk*, for October, 1937, p. 456, Burleigh reports taking a Florida Blue Jay in Onslow County, June 1, 1932.

Genus CORVUS Linnaeus.

NORTHERN RAVEN.

Corvus corax principalis Ridgway. [486a]

Description. Plumage entirely black; feathers of throat narrow and pointed. Length 24.00; wing 17.00; spread 48.00-54.00; tail 9.75.

Range. Northwest Alaska to northern Greenland, south to Washington, coast of Maine and southward through the mountains to northern Georgia.

Range in North Carolina. Mountainous parts of the State.

Ravens are not numerous in North Carolina and apparently are today confined to the higher mountains, where they have been noted on various occasions. Rhoads saw some on Roan Mountain in 1895. Bruner and Feild made a similar observation there on June 29, 1911; Ganier and party reported "a flock of 7 or 8 birds on Roan June 25" (1936). Cairns reported them "common" in Buncombe County in 1891, and said some bred on Craggy Mountain. Cairns also said they nested on Grandfather Mountain. Here Metcalf found one, September 10, 1908, and noted a pair in the summer of 1925. Murray found a pair on this mountain in August, 1925, and again on July 25, 1933. Finally the Browns found a nest there with young on April 14, 1940. F. R. Brown saw a nest on Wayah Bald Mountain in Macon County in April, 1932.

Fig. 79. Northern Raven.

Formerly Ravens were now and then noted along the coast. H. H. Brimley saw some near Beaufort, June 4 and 8, 1892. Lester L. Walsh reported four seen on Knotts Island near the Virginia State line on November 14, 1931. In April, 1906, a fully feathered young bird was received at the State Museum from Topton, Cherokee County. H. H. Brimley cared for it for more than a year and recorded: "During its captivity its food consisted entirely of animal matter, all kinds of vegetable food being consistently refused." Another specimen that

had been caught in a steel trap came to the Museum from Bushnell, Swain County, on February 9, 1912. C. W. Beckwith saw three ravens in Pisgah National Forest, November 26, 1938.

This species superficially resembles a crow but is decidedly larger, and its hoarse *cra-ak* is a wholly different note from the *caw* of the crow. It is usually found singly or in pairs, although larger groups, perhaps composed generally of families, are now and then observed. It flies by heavy flapping of the wings but at times sails along without apparent effort. Its nest is built on a little shelf of some mountain wall or crag. It is composed of sticks and twigs and is lined with a matting of moss, sometimes with wool. The dark-mottled eggs range from two to seven in number.

☆ Added nesting records are for Snake Mountain near Boone. One of these was in early May, 1946, and the other April 8, 1956. ☆

EASTERN CROW.

Corvus brachyrhynchos brachyrhynchos Brehm. [488]

Description. This well-known bird is wholly black. Length 17.00-21.00; wing 12.00-13.25; bill 2.00 tail 6.90-8.00.

Range. Breeds from Manitoba and Newfoundland south to Maryland and northern Texas. Winters throughout eastern United States.

Range in North Carolina. Winter resident; others migrate through the State.

This is the common crow in the north and perhaps is the subspecies that composes most of the population of our great winter "crow roosts."

SOUTHERN CROW.

Corvus brachyrhynchos paulus Howell. [488c]

Description. Similar to the Eastern Crow but smaller. Wing 10.60-12.00 tail 6.75; bill 1.80-1.97. Also, the bill is more slender.

Range. Lower Potomac and Ohio Valleys south to eastern Texas and the northern limits of Florida.

Range in North Carolina. Whole State in summer except perhaps the higher mountains. Probably present also to some extent in winter.

The Southern Crow is doubtless the best-known bird in North Carolina. It breeds in April or May, usually building its nest in the top of a tall pine tree growing in a remote location. The known nesting dates, as shown by egg-laying, range from March 13 (Kelly, in Cumberland County) to May 6 (Adney, in Chatham County). The nest is a heavy, compact structure, composed of twigs and sticks and lined with leaves and grass. The eggs are four to six in number, varying in color from pale-bluish to an olive-green, and thickly spotted and blotched with dark brown. Size 1.70 x 1.20.

This is a bird of varied diet, not despising the farmer's newly planted corn, nor the eggs and young of other birds. It is also quite partial to grubs, cutworms, wireworms, and other insects, by the destruction of which it is of no small service to the farmer.

Pearson has known individual crows to become a great annoyance to poultry raisers, by developing a most unpleasant habit of eating newly hatched chicks; H. H. Brimley reports the killing of young turkeys by crows near White Lake. In the light of all its misdeeds, the crow evidently will have to eat many injurious insects if the balance of popular sentiment is to swing in its favor.

Fig. 80. Crow.

FISH CROW.

Corvus ossifragus Wilson. [490]

DESCRIPTION. Wholly black, the plumage with a violet-blue gloss on the upperparts, changing to a more greenish hue on the head, neck and underparts. Length 15.00-17.00; wing 10.20-11.40; tail 6.00-7.00.

RANGE. Along the coast and lower river valleys from New England to Florida and Texas.

RANGE IN NORTH CAROLINA. Confined to a strip of undetermined width along the coast.

The Fish Crow, a somewhat smaller bird than the foregoing species, is a common resident along our coastal region, nesting in trees in suitable situations. Its note is more nasal and not so prolonged as the *"caw"* of the larger crows. The nests and eggs are similar to those of the Southern Crow, but are smaller, averaging only 1.50 x 1.10.

The feeding habits of the Fish Crow are similar to those of its larger relative, but, on account of a different habitat, it feasts also upon fish, crabs, and other

creatures that are washed ashore by the waves. They plunder the heron and cormorant rookeries, eating the eggs when the parents are absent from their nests. Pearson has found their nests late in April and May in Dare, Hyde, and Carteret Counties. He observed that if you found one Fish Crow's nest in a grove, it was frequently the case that a search would reveal others within a radius of a few hundred yards. Burleigh saw an occupied nest on Pine Island, Currituck County, May 21, 1932, that was situated in a myrtle bush only eight feet from the ground.

Davis found a nest containing young in the Battery Island heron colony (Southport) on June 14, 1938. It was situated in a pine tree whose top projected above the scrubby cedars containing the herons' nests.

Family **PARIDAE.** Titmice and Chickadees.

Small birds allied to the preceding family, with the nasal feathers directed forward covering the nostrils; the wings short and rounded, not much longer than the tail; and the color of the upperparts mainly ash-gray.

This is another very widely distributed family of little birds, its members ranging especially throughout much of the Northern Hemisphere. About two hundred and fifty species are known. Some fifteen of them occur in North America. For this book we have listed the four species and subspecies found in North Carolina. These are all very active birds and move about generally in small bands. As a rule such a group is not difficult to locate as its members continually are announcing their presence in cheerful tones. All of them haunt brush lands or forested regions.

There are few, if any, families of birds in which the types of nests vary so greatly. Some excavate holes in decayed trees for this purpose, other assemble long bag-shaped structures with entrance on one side. Surprising quantities of plant down are used in building a nest of this character, on the outside of which some are covered with lichens, and others are protected by a coating of thorn-bearing twigs. In feeding habits they are largely insectivorous, eating adult insects and their larvae in the summer and consuming insect eggs in winter. In the stomach of one North American chickadee, 278 eggs of the cankerworm were found.

Genus **PARUS** Linnaeus.

BLACK-CAPPED CHICKADEE.

Plates 35 and 38

Parus atricapillus atricapillus (Linnaeus). [735]

Description. Top of the head, nape, and throat black; back ashy; sides of head and neck, breast, and belly white; the latter and sides washed with buff. Length 4.70-5.75; wing 2.55-2.75; tail 2.50-2.70.

Range. From southern Canada to the mountains of North Carolina.

Range in North Carolina. Resident on some of the higher mountains.

In wooded regions, particularly in groves of the colder northern States, the Black-capped Chickadee becomes a very friendly, trusting visitor to the yard or

lawn where human welcome awaits it. In little groups they come about the house, drink at the birdbath, and eat from the bird feeding shelf. If a man or woman stands quietly by a feeding station or birdbath, these dainty birds may light on the observer's head or shoulder and at times even take food from the hand. The extent of the distribution of this bird in North Carolina is not well understood and our information regarding its habits in this region is scant, but we do know that it is present in the mountains where it is said to breed and spend the winter. Burleigh reports it "of merely accidental occurrence" on Mount Mitchell.

CAROLINA CHICKADEE.

Plate 35

Parus carolinensis carolinensis (Audubon). [736]

DESCRIPTION. Similar to preceding but smaller, the tail comparatively shorter; greater wing-coverts not margined with white. Length 4.25-4.60; wing 2.40-2.60; spread 7.00-7.75; tail 2.10-2.50.

RANGE. From North Carolina south to the Gulf Coast.

RANGE IN NORTH CAROLINA. Resident throughout the State.

The Carolina Chickadee is a common "Tomtit" of our State, being abundant wherever trees and bushes abound, and its *chick-a-dee-dee* note may be heard almost any day throughout the year.

The nest is built in a natural cavity of a dead or living tree, or in a hole dug by the birds themselves in a dried stub or stump. Occasionally the abandoned hole excavated by some other bird is employed. The cavity is lined with feathers, fur, cotton, cattail fluff, moss, hair, bark strips, and other materials matted rather than woven together. It is usually about six inches below the entrance hole, which is itself at a height of from two to twelve feet from the ground. The eggs number four to seven, and are white, sprinkled with small blotches and specks of reddish-brown. Size .60 x .50. April is the usual month for nesting.

This is a very active little bird, and when feeding may often be seen hanging back downward on a pine cone or on a bunch of dead leaves caught in the branches. Its notes are shorter and somewhat different from the Northern Chickadee, and the bird seems less inclined to become familiar with man. It is found throughout the State and in the mountains. Eggs have been found at Raleigh from April 3 to May 11.

NORTHERN CAROLINA CHICKADEE.

Parus carolinensis extimus Todd and Sutton.

DESCRIPTION. "Similar to *P. c. carolinensis* (Audubon), but averaging larger, sex for sex; pale edgings of wings and tail averaging considerably more conspicuous; sides and flanks brighter reddish brown; and sides of head slightly grayer," (Todd.)

RANGE. "New Jersey west at least to Missouri, and southward to Tennessee and western North Carolina."—(Todd.)

RANGE IN NORTH CAROLINA. Known only from Reidsville eastward to the coastal region.

This form of the chickadee was described by Todd and Sutton in the *Proceedceedings of the Biological Society of Washington*, Vol. 49, pp. 69-70, 1936. The

type specimen was taken by George M. Sutton at Bethany, West Virginia, January 3, 1934.

Wetmore has provided the following records for the year 1939:

"Specimens have been examined from the following points: Hogan Creek, 7 miles northeast of Reidsville, September 18; Troublesome Creek, 7 miles south of Reidsville, Rockingham County, September 25; Conetoe Creek, 3 miles west of Bethel, Pitt County, November 2; Clinton, May 1; and the Dismal Swamp area, 7 miles west of South Mills, April 14, 15, and 17."

From the discussions on the two forms of the Carolina Chickadees as given above, it will readily be seen that at the present time there exists but little exact knowledge as to the distribution of the two closely allied subspecies, *P. c. carolinensis,* or *P. c. extimus.*

☆ New western records are from Highlands, where 2 females were taken (October 27th and June 12th). ☆

TUFTED TITMOUSE.

Plates 35 and 38

Parus bicolor Linnaeus. [731]

Description. Grayish-ash above, whitish below; forehead black; flanks tinged with rusty; head crested. Length 5.65-6.50; wing 3.05; spread 9.35-10.35; tail 2.80-3.15.

Range. From Iowa and New Jersey south to the Gulf Coast.

Range in North Carolina. Whole State in all seasons.

The Tufted Titmouse, known to many country boys as the "Tomtit," is a slender, gray bird with a noticeable crest. Its loud, clear whistle is heard in all parts of the State. Nesting operations take place from late April to early June. The nests are made in the natural hollows of trees, frequently cavities are filled with dead leaves, grass, and weed stems, for a depth of a foot or more. On this mass the nest proper is constructed. This is composed of green moss and leaves, lined with cotton, fur, fine grass, or roots. The five to seven eggs are white or light cream in ground color, and are profusely speckled and spotted with different shades of reddish-brown. They are covered by the bird when it leaves the nest.

Cairns claimed that the female does all the building, and that the male provides her food while so occupied. He also stated that when the nest is disturbed the birds will remove the eggs. The female is very hard to flush from the nest, often allowing herself to be caught. The same authority further stated that out of one hundred nests he examined in Buncombe County, the lowest was five feet, and the highest sixty-five feet from the ground. Smithwick recorded that in Bertie County, he found eggs as early as April 21 (1896) and as late as June 9 (1894).

Over a period of five years, ending September, 1934, Burleigh frequently traversed the slopes and top of Mount Mitchell in his study of the flora and fauna of the region. In the fir and spruce regions of the mountain during all these years he only found three titmice. These were observed between September 30 and October 7, 1932. Yet on the lower slopes and in valleys of the surrounding country, the species was by no means rare.

Family **SITTIDAE**. Nuthatches.

The nuthatch family is distributed chiefly throughout North America, Europe, and Asia. About seventy distinct species are known. Four species, containing some fifteen subspecies, live in North America. Three species with one subspecies reside in North Carolina.

Although spending virtually all of their lives on the trunks and larger limbs of trees, they are not furnished with stiff tail-feathers to help support them in their movements, like the creepers and woodpeckers. Their call notes are clear and characteristic, but these could hardly be called songs. They nest in holes in trees or walls, and some forms, for instance the common nuthatch of western Europe, will block up with mud a large entrance, leaving only a hole sufficient for the bird to pass through.

The family name is derived from the habit of placing seeds in cracks of the bark and "hatching" or hacking them until they are broken.

Genus **SITTA** Linnaeus.

WHITE-BREASTED NUTHATCH.

Plates 35 and 38

Sitta carolinensis cookei Oberholser. [727]

DESCRIPTION. Top of head black, rest of upperparts bluish; sides of head and underparts white; wing-coverts tipped with whitish; outer tail-feathers black with white spots near their tips, middle ones like back; hind part of belly tinged with rusty. Length 5.25-6.15; wing 3.50-3.75; spread 10.35-11.05; tail 1.95-2.20. *In the female the black of the crown is partly concealed by an edging of gray.*

RANGE. Breeds from Canadian Provinces to Gulf States.

RANGE IN NORTH CAROLINA. Believed to inhabit the entire State.

This is a common but not abundant resident in wild timberlands and in towns that are blessed with large shade trees. Frequently it is seen in pairs, moving along on the trunks and larger limbs, often head downward and always very busy. While thus engaged it repeatedly utters its peculiar nasal *yank, yank.*

This species makes its nest in the natural cavities of trees, or rarely in a hole excavated by the bird. It is made of feathers, hair, and dry leaves loosely put together. Usually five or six eggs are laid. They are white in ground color, with somewhat of a rosy tinge, and are speckled and spotted with reddish-brown and purple. Size .77 x .56.

Cairns said this bird nests early in April in Buncombe County. In Bertie County, near the eastern end of the State, Smithwick took eggs on April 2, 10, and 29, at heights varying from six to thirty feet. Pearson, during the years 1892-1897, found nests at Guilford College ranging from twenty inches to forty feet from the ground.

The bill of this large nuthatch is strong, and the bird will hammer the bark of a tree with great persistence in its search for coveted insects. All the members of this family are among man's best friends, as they destroy vast quantities of insects, their eggs and larvae, which are harmful to our fruit and forest trees. It also eats seeds, being especially fond of those of the sunflower.

KINGLETS, NUTHATCHES, CHICKADEES, *Etc.*

The following was given us by Wetmore after his recent (1939) study of the species from this State:

"Through North Carolina there is a definite area of intergradation between the northern and southern races of this widely distributed bird of which the northern form is paler dorsally and slightly larger and the southern one darker and a little smaller. In addition the female of typical *carolinensis* has the black of the crown partly concealed by an edging of gray, a marking most evident in fall and winter as in occasional individuals in spring and summer this disappears. In the southern bird the crown is definitely black in both sexes.

"Birds from the northern section of the State belong definitely with the northern form, though in some there is more or less indication of intergradation."

☆ New records number 75, from 49 localities, confirm the fact that this bird is a resident throughout the State. ☆

FLORIDA NUTHATCH.

Sitta carolinensis carolinensis Latham. [727b]

DESCRIPTION. Similar to preceding species but darker and smaller.

RANGE. Breeds in Lower Austral Zone of Georgia and Florida and along the Gulf Coast, north to southern North Carolina, southern Illinois, and southeastern Missouri.

RANGE IN NORTH CAROLINA. Southern part of State, but full range not yet determined.

This is another of those subspecies of birds very difficult to determine without the aid of a collector's gun. Again we turn to Wetmore. He states that *S. c. atkinsi* "is represented by skins from the southern section of the State" and that some birds taken are definitely intermediate although showing grayer plumage and the females having black (not grayish) crowns. He speaks of the specimens studied having been collected at Murphy on June 13, also fifteen miles east of Hayesville, and again near Rockingham, May 31.

He makes the very obvious observation: "The range of the two subspecies remains to be worked out in detail. Undoubtedly many specimens will be found that can be allocated only arbitrarily."

RED-BREASTED NUTHATCH.

Plates 35 and 38

Sitta canadensis Linnaeus. [728]

DESCRIPTION. Smaller than the preceding species, and with a dark stripe (black in male, bluish in female) from bill through eye and beyond, and with the underparts, except for the white throat, varying shades of rusty. Length 4.15-4.75; wing 2.60-2.85; spread 7.50-8.50; tail 1.25-1.75.

RANGE. Breeds from Alaska to the mountains of North Carolina. Winters southward, sometimes to northern Florida.

RANGE IN NORTH CAROLINA. Whole State irregularly in winter, resident on some of the higher mountains where it breeds.

The Red-breasted Nuthatch is an irregular winter visitor in North Carolina at least as far east as Raleigh, where it is common some years and rare or altogether absent in others. This species usually goes in small bands, perhaps composed of the brood of the previous year. In feeding it shows a preference for

the smaller branches, rather than the trunks of trees, and according to Wayne feeds much upon seeds of the pine and cedar. Skinner regards the bird as an irregular winter visitor in Moore County. Fleisher saw one at Wilmington, April 14, 1919. Near Raleigh it has been observed in autumn as early as September 13, and at Chapel Hill as late in spring as May 21.

In western North Carolina, it has been recorded as a rare resident at Highlands by Boynton. Cairns found a nest on Black Mountain on May 10, 1886, in a dead stub twenty feet from the ground, and another six feet up, each of which contained four fresh eggs.

Ganier, in *The Migrant*, 1936, p. 85, describes in much detail a nest with five eggs found by Bamberg, June 23, 1936, on Roan Mountain, at an elevation of 5,900 feet. It was nine feet from the ground in a dead spruce stub. He stated: "As usual with this species, a small amount of gum had been brought and applied to the exterior about the entrance. A scanty pad of soft inner fibers of bark was beneath the eggs."

As a very good example of how the wild bird supply of a region often is most directly affected by the presence or absence of some favorite food, Burleigh (MS.) has thus commented regarding the movements of the Red-breasted Nuthatch on Mount Mitchell:

"The species is resident, but varies in abundance according to the quantity of spruce and fir seed that ripens in fall. When the crop has been good these birds may be found in small flocks throughout the winter in the narrow fringe of woods at the very top of the mountain. On the other hand, if there are few cones, the birds disappear in October, and while still found at a lower altitude they do not return to the top until the following April.

"So, during the winter of 1929-30 they were plentiful on the higher ridges but were completely absent the following winter; again they were plentiful during the winter of 1931-32, and scarce the following two winters. They vary little in numbers during the summer months, scattered pairs nesting wherever old stubs offer suitable nesting sites."

BROWN-HEADED NUTHATCH.

Plates 35, 36 and 38

Sitta pusilla pusilla Latham. [729]

DESCRIPTION. Ashy-blue above; whitish below; top of head brown, a white spot on nape. Length 3.85-4.40; wing 2.60; spread 7.75-8.30; tail 1.25.

RANGE. Resident from southern Missouri and Delaware to the Gulf Coast.

RANGE IN NORTH CAROLINA. Resident in the central and eastern parts of the State, but not recorded west of Burke County.

In pinewoods through the State, east of the mountains, this is the most common nuthatch. It is much given to traveling in small family bands. In spring a pair will select some suitable fence post, tall stump, or dead limb, of the proper degree of softness from decay, and begin industriously to excavate a hole in which to nest. Several holes may be commenced and abandoned before one entirely to their taste is found. The final choice is dug to a depth of about six inches below the entrance hole and is lined with strips, of bark, chips, leaves,

BROWN-HEADED NUTHATCH. *Male and Female.*

cotton, and the wings of pine seeds. The peculiar pungent odor of the bird is imparted to the nest.

The eggs are four to six in number, usually laid about the end of March or the beginning of April, though belated nests have been found as late as May 15. Their ground color is white, spotted heavily with reddish-brown and lavender, the markings being usually rather evenly distributed. Size .60 x .50. The height of the nest varies from eighteen inches to twelve feet from the ground. Pearson found a pair of these birds excavating a nesting hole in a pine stump near Greensboro, on May 5, 1903; and, in 1898, found three nests containing eggs: one in Hyde County, April 15, one at Cape Hatteras, April 19, and one at Belvidere, Perquimans County, April 25. All were in decayed pine snags.

C. S. Brimley has stated: "I made some notes in 1888 on the time occupied by this species in preparing dwellings for occupation. The first pair I noted had finished digging out the hole and had commenced to line it on March 22. Sixteen days later the nest contained four fresh eggs. Pair No. 2 had just begun building on April 16, and in ten days more the nest was finished and fresh eggs laid. Pair No. 3 worked for twenty-two days on one hole, and when I then lost patience and broke it out to see what they had done, they had not even started to line it. They then commenced on another stump, and in twenty-two more days had the excavation completed, lined, and three eggs laid. Pair No. 4 dug a hole, lined it, and laid three eggs in thirteen days."

Family **CERTHIIDAE.** Creepers.

Small birds with decurved bill; wings not longer than the tail, the feathers of which are stiffened and pointed like those of a woodpecker and are similarly used to support the bird as it runs or climbs up the trunk or limbs of a tree.

This family is represented in America by several subspecies of an Old World species, two of these forms occurring with us.

Genus **CERTHIA** Linnaeus.

BROWN CREEPER.

Plates 35 and 38

Certhia familiaris americana Bonaparte. [726]

DESCRIPTION. Upperparts varied with white, fuscous, and buff; rump pale rufous; tail pale grayish-brown; underparts white. A band of creamy-buff across all but the outer tail-feathers. Length 5.00-5.75; wing 2.40-2.70; spread 7.50-8.20; tail 2.30-2.90.

RANGE. Breeds from southern Canada to West Virginia. Winters southward to the Gulf States.

RANGE IN NORTH CAROLINA. Whole State in winter, from early October to mid-April.

This winter visitor, which we may find in almost any neighborhood in the State where there are trees, is never abundant, and always is difficult to see, so well do its colors blend with the bark along which it creeps. It is a slender striped, brown bird, with a rather long tail used in supporting its body as it hitches along with easy jerks. It has a little song, especially in spring, that is

seldom noticed, so weak and insect-like is its modest aria. It arrives in October and departs for its summer home in April.

☆ An early date is September 23rd (Greensboro) and a late date is May 2nd (Raleigh). ☆

Fig. 81. Brown Creeper.

SOUTHERN BROWN CREEPER.

Certhia familiaris nigrescens Burleigh. [726f]

DESCRIPTION. Similar to *C. f. americana* but crown and upper half of back distinctly darker, the prevailing color being fuscous-black rather than sepia; primaries darker and approaching clove-brown; tail more grayish (hair brown); russet of rump darker; underparts grayer. *Burleigh, Proc. Biol. Soc., Washington,* 48, 61-62, May 3, 1935.

RANGE. Breeds in the Canadian Zone of the southern Appalachians from Pocahontas County, West Virginia, to the Great Smoky Mountains in western North Carolina and eastern Tennessee; winters at lower altitudes in this same region (Burleigh).

RANGE IN NORTH CAROLINA. In the higher mountains.

This is the form of the Brown Creeper that resides in the mountain regions of the State throughout the year, breeding on the higher ranges and wintering in the valleys. Rhoads observed it on Roan Mountain in June, 1895; Brewster on Black Mountain and near Highlands in late May, 1884; and Feild and Bruner saw young birds on Grandfather Mountain, June 24, 1911. It was also seen by C. S. Brimley at Double Spring Gap, Haywood County, May 25, 1913, and by Murray, Grandfather Mountain, August 1, 1930, and August 1, 1933.

According to Cairns, it breeds in Buncombe County in May, selecting knot-holes and natural cavities of trees for nesting. Five or six eggs are laid. LeMoyne found a nest May 15, 1886, behind the loose bark in the dead top of a spruce in the Great Smoky Mountains, just across the Tennessee border from North Carolina. It was composed of a mass of lichens, moss, feathers, grass, and a few rootlets. The eggs were five in number, much resembling those of the chickadee, but slightly smaller. Another set of six, brought to him by a lad and said to have been found in a nest placed in the crevice of one of the logs of a fence, were profusely spotted with brown spots. Size .59 x .47. (*Ornithologist and Oologist,* 1886, p. 179.)

This is a curious little bird that climbs trees much after the manner of a woodpecker. It always keeps working upward, and upon reaching a point among the limbs, flies to the base of another tree and again starts to climb aloft.

Burleigh, who first separated this bird as a subspecies and gave it the name, *C. f. nigrescens,* devoted much attention to studying its habits and general activities. Regarding his observations of its distribution on Mount Mitchell, he has written in part: "while it nests in the fir and spruce woods at the top of the mountain, it invariably retreats to the valleys late in fall and has never been found above an altitude of approximately 4,500 feet in winter. Not until the middle of April does it reappear on the higher ridges, but from then on scattered pairs can be seen there throughout the summer.

"Two birds that nested unusually late were noted August 10, 1931, feeding young as yet barely able to fly. The nest, found close by, was fifteen feet from the ground behind a loose piece of bark on an old rotten fir stub at the side of the road, which ran through the fir and spruce woods (altitude 6,500 feet)."

Family **TROGLODYTIDAE.** The Wrens.

The wren family is numerous and widespread. At least two hundred and sixty species and numerous subspecies have been listed in the ornithological publications of the world. They are small, plainly colored birds with skulking habits. Possessed of great curiosity, they are continually coming to the margins of their retreats to see what is going on in the more open places. Their small chattering, querulous notes are often heard and as a class they are given to bursting into song, some producing delightful, bubbling music, so loud as to seem quite out of proportion to the size of the musician.

These small birds occupy many regions of Asia and Europe. In the Western Hemisphere they are particularly numerous, more than two hundred and thirty species being known. They are especially abundant in Central and South America. The lives of some are habitually spent close to the homes of man, others are marsh dwellers, and some prefer cliffs and canyons of the arid South-

west. All build nests of large size; the eggs are numerous and often three broods are reared in a year. In North America today there are ten species recognized, including some fifty subspecies, of which six species including eleven subspecies are recorded for North Carolina.

Genus **TROGLODYTES** Vieillot.

EASTERN HOUSE WREN.

Plate 37

Troglodytes aedon aedon Vieillot. [721]

DESCRIPTION. Dull brown above, more rusty on rump and tail; the back feebly, or not, at all, barred with darker; wings and tail finely barred; sides and flanks usually, breast sometimes, and under tail-coverts always, barred with blackish; face without noticeable stripings as in the large Carolina Wren. Length 4.25-5.25; wing 1.90-2.15; spread 6.35-6.85; tail 1.70-2.10.

RANGE. Breeds from the southeastern Canadian Provinces to Kentucky and North Carolina; winters in the South Atlantic and Gulf States and southward to Tamaulipas, Mexico.

RANGE IN NORTH CAROLINA. Formerly known only as a transient, but now also as a common summer resident.

Until recent years the Eastern House Wren was known in North Carolina only as a rare spring and autumn migrant. Suddenly, in 1922, they began to appear in the State as summer residents. That year Brown and E. M. Hoffman each reported finding nests of these birds at Salisbury, in Rowan County. By 1928, several nests had been noted in other regions, and the number of breeding places has steadily increased, until we have records of the House Wren being a regular summer resident in the counties of Carteret, Dare, Davidson, Durham, Forsyth, Guilford, Nash, Orange, Rowan, Wake, and Warren. Doubtless they are common today in a great number of other localities.

These sweetly singing, nervous, pert little birds usually stay close to the abode of man and will quickly utilize nesting boxes erected in the yard or garden for their accommodation. C. S. Brimley says that thus far, at Raleigh, the earliest record of their appearance in spring is April 1, and that none has been noted in autumn later than October 13. Wrens are great destroyers of insects and are everywhere protected by law.

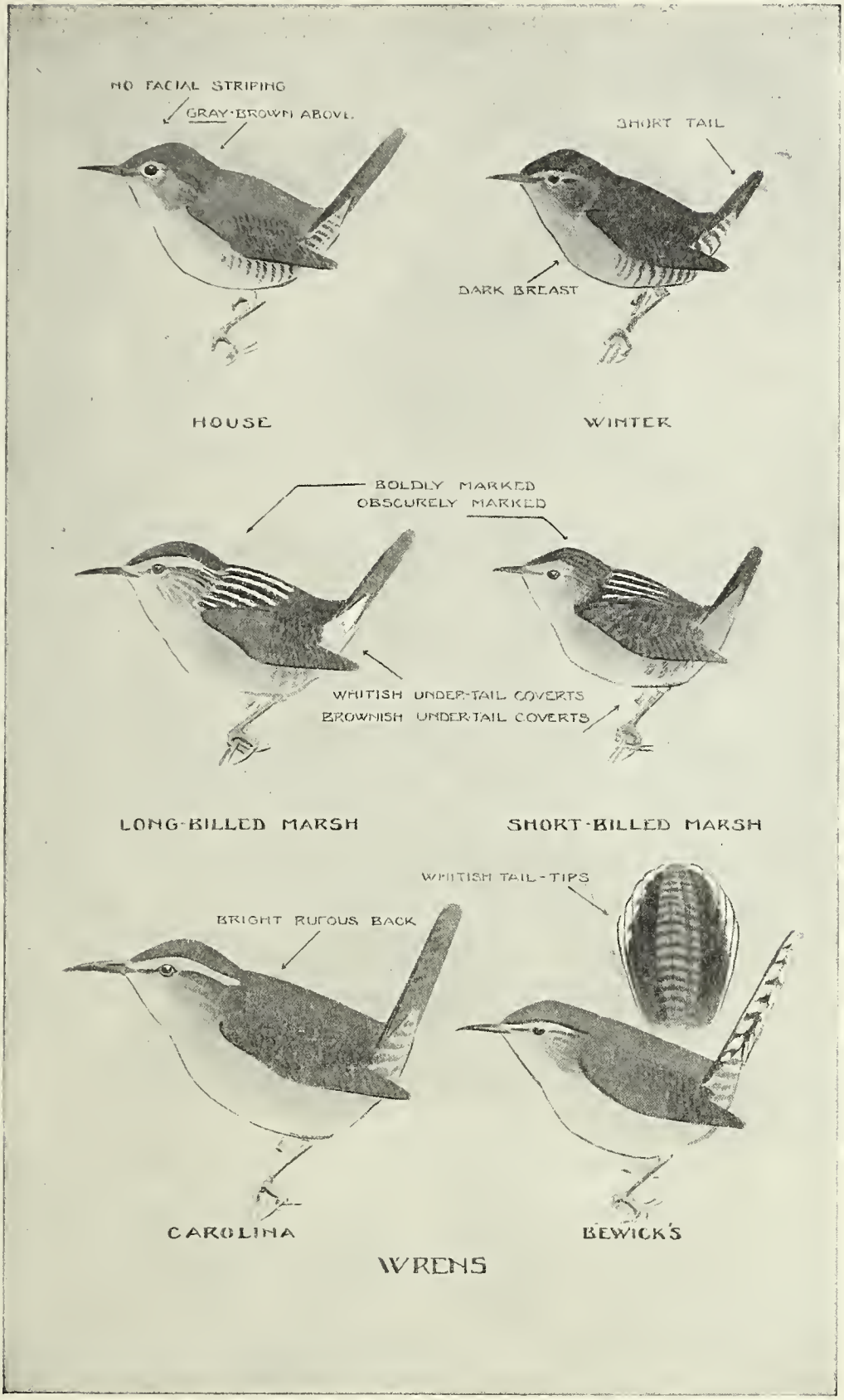
☆ New winter records are from Wilmington, Washington, Rocky Mount, Fort Bragg, Aurora, Mount Olive, Lake Mattamuskeet, Raleigh, and the Smoky Mountains. Western nesting records are for Elkin, Pineola, Boone and Arden. ☆

OHIO HOUSE WREN.

Troglodytes aedon baldwini Oberholser. [721b]

DESCRIPTION. Similar to preceding but upperparts darker, much less rufescent (more sooty or grayish); the sides and flanks less rufescent (more grayish); rest of lower surface more grayish (less buffy). It is always less rufescent than the common form, but it not only has a dark sooty phase of plumage but also a lighter more graying phase that more approaches *parkmani* but appears in all parts of the range of *baldwini*. (Condensed from original description by Oberholser.)

RANGE. Eastern United States, mostly west of the Alleghanies; winters from South Carolina south.



Courtesy of Roger Tory Peterson

RANGE IN NORTH CAROLINA. As yet defined but vaguely.

Among the House Wrens that the past few years have spread throughout much of North Carolina, the subspecies known as the Ohio House Wren seems to be occupying a prominent place. The *Ohio Journal of Science*, Vol. 34, p. 92. records the taking of twenty-four specimens of this bird in North Carolina between April 22, 1930, and October 6, 1933. All of these but one were recorded in the Asheville neighborhood during the months of April, May, September, and October, all transients.

This midwestern form naturally would be expected to become evident first in the western part of our State, and only very gradually spread eastward. It is somewhat surprising, therefore, to learn that Burleigh found a pair nesting at Beaufort in Carteret County within sound of the roar of the ocean surf. His identification was determined by the capture of a male. This was on May 28, 1932. (*The Auk*, October, 1937.) He also stated that farther northward on the coast, at Stumpy Point, he found these birds "fairly plentiful" and here took another male on July 20, 1934. There is nothing to indicate that the habits or general appearance of this bird differs materially from that of the Eastern House Wren.

Genus **NANNUS** Billberg.

EASTERN WINTER WREN.

Plate 37

Nannus hiemalis hiemalis (Vieillot). [722]

DESCRIPTION. Deep reddish-brown waved with dusky; wings, tail, and belly posteriorly waved with dusky. Length 3.75-4.20; wing 1.65-2.00; spread 5.75-6.50; tail 1.00-1.30.

RANGE. Eastern North America, breeding from northern United States, northward; winters in most of the eastern States.

RANGE IN NORTH CAROLINA. Migrant and winter visitor.

Presumably this is the subspecies of the Winter Wren that spends the colder months in much of North Carolina, although many come to us only as fall and spring migrants. This is a small dark-colored wren, much given to hiding in thickets, brush heaps, and along fences. Of its common note, Peterson says it is "a two-syllabled *kip-kip*, suggestive in quality of the *chip* of the Song Sparrow."

The earliest date we have of the Winter Wren's arrival in autumn was furnished by Odum at Chapel Hill, who recorded it on September 23 (1933). Its latest spring appearance, of which we have knowledge, is that given by C. M. Coker from the same locality. He saw one on April 26 (1931).

SOUTHERN WINTER WREN.

Nannus hiemalis pullus (Burleigh). [722g]

DESCRIPTION. Similar to preceding, but decidedly darker and less rufescent above; the underparts lighter brown with the vermiculation of the abdomen and flanks heavier; wings longer; bill smaller and more slender. Type locality, Mt. Mitchell, N. C., altitude 6,500 feet. (Condensed from original description by Burleigh.)

RANGE. Canadian zone of the southern Alleghanies, occurring at a lower altitude in winter in the same region.

RANGE IN NORTH CAROLINA. Tops of the higher mountains.

The Southern Winter Wren breeds commonly in many localities in the moun-

tain regions of western North Carolina, the nest being hidden in brush heaps, among the roots of overturned trees, in holes of decayed trees, and similar places. The nest is made of twigs, moss, and other material, and often is lined with feathers. The eggs range from five to seven in number, are creamy-white and usually are more or less spotted with fine dots of reddish-brown.

Rhoads found it breeding in the fir belt on Roan Mountain in June, 1895; Ganier heard males singing and saw a female feeding its young in the same region, June 22-27, 1936. Pearson encountered two birds on Mount Mitchell on August 8, 1903, at an elevation of 6,500 feet; and Sherman heard one singing in June, 1909, on Grandfather Mountain, at 5,000 feet elevation. Brown found them on Grandfather in June, 1927, 1928, and 1930.

Burleigh, who discovered that the breeding Winter Wren of the North Carolina mountains differed slightly in plumage from the more northern Eastern Winter Wren and therefore might be entitled to the status of a subspecies, named it *N. h. pullus*. From his manuscript account of its occurrence on Mount Mitchell we quote:

"The Winter Wren of the Southern Appalachians is perceptibly darker than birds found farther north, and is likewise somewhat smaller in its measurements. Breeding abundantly in the thick fir and spruce woods at the top of the mountain, this hardy little bird lingers in the fall until winter blizzards force it to a lower altitude. The first hint of milder weather sees its reappearance, so for ten months of the average year it can be found on the higher ridges.

"Exceptional winters will influence its movements to a certain extent, but it can invariably be seen on Mount Mitchell from the latter part of March until the middle of November, and has been recorded there as early as February 6 (1931) and as late as December 6 (1932). A nest found May 16, 1930, held four fresh eggs, and was well concealed in the upturned roots of a wind-thrown fir in the cut-over area (elevation 6,300 feet)."

Wetmore has advised us of the very interesting fact that in the National Museum there are two skins of this bird that were collected on Conetoe Creek three miles west of Bethel, Pitt County, on November 1, 1939, "indicating a migration away from their mountain breeding range."

Genus **THRYOMANES** Sclater.

BEWICK'S WREN.

Plate 37

Thryomanes bewicki bewicki (Audubon). [719]

Description. Upperparts deep umber-brown without bars or streaks; underparts grayish-white; a white line over eye; tail-feathers, except middle pair, black tipped with whitish. Length 5.00-5.50; wing 2.05-2.25; spread 6.70-7.18; tail 2.10-2.40.

Range. Breeds from Nebraska and central Pennsylvania south to Arkansas and along the mountains to central Georgia.

Range in North Carolina. Summer resident in the mountain region. A migrant and scarce winter visitor in the rest of the State.

This species is slightly larger than the House and Winter Wrens, and smaller than the Carolina Wren. Its dark tail is not so stubby as that of the typical wren, and most of its feathers are white at the tip. It is known over most of North Carolina as a migrant. C. J. Pennock found one at Pinehurst, Moore County,

March 16, 1910; Brown had a similar experience at Salisbury, March 3, 1923; and E. L. Green, Jr., recorded two at Cape Hatteras, October 17, 1937. All of our positive records from central and eastern North Carolina, of which there are several, were made either in the winter, spring, or fall.

In the mountains it is far more common and is a summer resident. Apparently it is confined to the neighborhood of human habitations, particularly in the small towns of that region. Among localities from which we have records are: Andrews, Blantyre, Blowing Rock, Asheville, Weaverville, Morganton, Highlands, and Sunburst, Haywood County.

The nest is similar to that of the Carolina Wren and is built in as great a variety of situations. The eggs also resemble those of that species, but are smaller, averaging in size about .64 x .49, and are also less heavily colored. According to Cairns, it nests in Buncombe County in April, and C. S. Brimley found a nest containing young birds at Blantyre in early May, 1908. Burleigh reports the species at Asheville, March 23 (1933) to October 24 (1932).

☆ One nesting record is for Winston-Salem and new winter records are Raleigh (3-December) and Charlotte (January). ☆

Genus **THRYOTHORUS** Vieillot.

CAROLINA WREN.

Plate 37

Thryothorus ludovicianus ludovicianus (Latham). [718]

DESCRIPTION. Clear reddish-brown above, brightest on rump; wings and tail finely barred with black; pale buffy beneath; a white superciliary stripe. Length 5.25-6.00; wing 2.15-2.50; spread 7.18-8.56; tail 1.80-2.35.

RANGE. Breeds from Connecticut to the Gulf States. Perhaps migratory in the northern part of its range.

RANGE IN NORTH CAROLINA. Whole State at all seasons.

The Carolina Wren is one of our best-known birds at all seasons in all parts of the State. Ever restless, and constantly shifting its position while being observed, it is a bird of decidedly striking personality. It is found along streams, in shady woodlands, and in the neighborhood of houses. It is the largest of the North Carolina wrens.

The nest is built in almost any convenient nook about buildings. Pearson has seen them situated in the pocket of an old overcoat left hanging on a back veranda of a farm house, in a tin washbasin on the mantel of a deserted negro cabin, in a broken gourd carelessly tossed on a grape arbor, in a cap hanging against the latticed wall of an outhouse, and in a kettle hanging on the wall of a kitchen, which had not been used for a few days. Some years ago a pair raised a brood in a nest they built behind a tier of books on a shelf in the study of Kemp P. Battle, at Chapel Hill. The birds made their entry through the window from which a pane had been broken. They fed their young often while Battle was reading in the room.

The nest may be placed in holes in banks along roads, among the tangled roots of upturned trees, and in brush piles. It is a bulky affair, composed of grass, dead leaves, moss, cotton, rootlets, or any other convenient and desirable material. Sometimes it is partly domed over. Laying usually begins in early April, and from four to six eggs are deposited. Apparently this wren regularly raises two

broods. Eggs have been found at Raleigh from April 15 to July 31.

The song is loud and ringing and is kept up throughout the whole year, which, so far as we are aware, is not the case with any other of our birds. Its notes are translated by some of our people in the words, *"jo-reeper, jo-reeper, jo-ree,"* while others translate the song into the words *"freedom, freedom, freedom."* Sometimes it is called the "Mocking Wren." All winter long, no matter how deep the snow, you may hear the singing of this wren, especially on bright, clear days. Probably domestic cats are its worst enemies.

Fig. 82. Carolina Wren.

Genus **TELMATODYTES** Cabanis.

Four forms of the long-billed Marsh Wren occur in North Carolina.

Birds of this genus are very unevenly distributed in our coastal marshes. Over large areas they rarely, if ever, are found, while in other locations their bubbling songs may be heard on all sides. One popular location for the long-bills is in certain marshes of the Beaufort region. Another good locality consists of the salt and brackish marshes about Southport. Between this region and the South Carolina line we have visited various marshes without once seeing or hearing a marsh wren. Gull Shoal Island, Pamlico Sound, at least formerly, contained in spring and summer a very large assemblage of breeding long-bills.

LONG-BILLED MARSH WREN.

Plate 37

Telmatodytes palustris palustris (Wilson). [725]

DESCRIPTION. Side of crown black; its middle, brown, as is also the back except for a central black patch which is streaked with white; underparts white from chin to under tail-coverts, little, if at all, interrupted by brown on the breast. Length 5.00; wing 1.75-1.92; tail 1.45-1.65.

RANGE. Breeds along the Atlantic slope to the Potomac Valley and coast of Virginia; winters regularly from New Jersey to South Carolina.

RANGE IN NORTH CAROLINA. Migrant and winter resident in the salt-marsh regions of the coast. Elsewhere common fall and spring migrant; not numerous in winter.

The Long-billed Marsh Wren makes its home largely in the great salt marshes along the coast, usually where the water is several inches deep. If found in fresh-water regions, look for it particularly where the tall reeds or cattails grow. Its bubbling song is poured forth with great energy, and usually several will be heard singing at no great distance from one another. Often the males fly upward for some yards, singing as they go, then drop silently into the marsh again.

The nest is made of wet, pliable marsh grass blades woven together into a hollow ball about the size of a husked cocoanut. The entrance hole is on the side. The birds seems to derive great pleasure in weaving their nests and often build four or five extra ones, for some reason not yet understood. The eggs range from 5 to 8, dull chocolate in color, and are heavily dotted with darker shades of brown. Forbush, who studied much of the feeding habits of birds, said this wren eats "ants, grasshoppers and locusts and their eggs, caterpillars and moths, beetles, flies, bugs, mosquitoes, snails and small crustaceans." A typical *T. p. palustris* was found by Wetmore to have been collected about eight miles southwest of Stumpy Point, Dare County, on October 20, 1939.

Nine geographic forms, or subspecies, of this bird are recognized, but the resemblance between them is so great that only on careful examination can the differences be recognized. We are listing four subspecies among the birds of North Carolina. Besides the typical eastern bird with us in winter, there here exist also the Prairie, Wayne's, and Worthington's Marsh Wrens.

WORTHINGTON'S MARSH WREN.

Telmatodytes palustris griseus (Brewster). [725b]

DESCRIPTION. This subspecies differs from other forms of the Longbilled Marsh Wren in its very gray color and absence of bright brown in its plumage.

RANGE. South Atlantic Coast region from Brunswick County, North Carolina, to northern Florida.

RANGE IN NORTH CAROLINA. Thus far known to occur only in the Southport and Smith Island regions.

We again include the Worthington's Marsh Wren in the list of North Carolina birds, this time on the authority of Alexander Wetmore. He advises us that W. M. Perrygo, collecting in North Carolina for the United States National Museum in 1939, brought back specimens of this bird. He states: "An adult female was secured, a mile northeast of Southport, May 19, and four taken on Smith Island opposite, on May 21, all belong to this race. Evidently here is the northern limit of this interesting bird. Attention is called to the fact that the

one from Southport was taken a mile south of the point where a skin of *T. p. waynei* was secured."

WAYNE'S MARSH WREN.

Telmatodytes palustris waynei Dingle and Sprunt. [725i]

Description. Similar to *palustris* but smaller, with the upperparts darker, the sides and flanks more heavily washed with brown; these and sides of breast with more or less barring; under tail-coverts heavily barred with darker. Wing about 1.86; tail about 1.56.

Range. So far as known, the salt marshes of North Carolina and South Carolina.

Range in North Carolina. Known to breed in salt marshes about Southport, Beaufort, and Pamlico Sound.

On May 20, 1898, Pearson found Long-billed Marsh Wrens abundant on Gull Shoal Island in Pamlico Sound. He examined a dozen of their nests and shot and skinned one of the birds. On August 2, he collected a bird in a breeding colony in a marsh near Beaufort. The Beaufort specimen was sent to Robert Ridgway and the Gull Shoal Island bird was turned over to C. S. Brimley. Both men reported that the specimens were of the subspecies known as Worthington's Marsh Wren. Pearson published these facts in *The Auk*, 1899, p. 250. Arthur T. Wayne, of Mount Pleasant, South Carolina, wanted to see the specimens. Upon examination, that very skilled technical ornithologist said that Ridgway and Brimley were both wrong for the birds were Marian's Marsh Wrens. He published his decision in *The Auk*, 1899, p. 362. Under this name, therefore, the *Birds of North Carolina* (1919) carried the statement that the Long-billed Marsh Wrens breeding on the coast of North Carolina were the variety known as Marian's Marsh Wren.

Thus Wayne's identification of our salt-water wrens stood unchanged for thirty-three years. Then in *The Auk*, 1932, p. 454, Dingle and Sprunt stated that this Carolina Marsh Wren was so different from others that it should be given a name by itself. So they proposed for it "Wayne's Marsh Wren," and under that name we here record it.

Wherever proper environment is found along our coast, little groups of Long-billed Marsh Wrens may be found breeding, and they have been heard, seen, and collected as far north as Engelhard, Stumpy Point (Wetmore), and Pea and Bodie Islands (Grey and Walker).

PRAIRIE MARSH WREN.

Telmatodytes palustris dissaeptus (Bangs). [725d]

Description. Similar to *T. p. palustris* but slightly larger and with the pale areas of the underparts buffy-white to pale brown; the breast usually much clouded with brown; rump and upper tail-coverts reddish-brown. Length 4.12-5.50; bill .60-.80; wing of male 2.02-2.08; tail 1.60-1.68. Wing of female 1.92-1.96; tail 1.60-1.62.

Range. Breeds from New England westward to the Great Plains. Winters to Mexico and western Florida, and found casually on Atlantic Coast from Virginia southward.

Range in North Carolina. Presumably appears only as a rare migrant.

Birds believed to be of this subspecies have been reported at Raleigh in March, April, May, September, October, and on January 14 and 30, 1890. Brown records one at Salisbury on December 26, 1923. Wetmore states that he personally collected a specimen in a marsh a mile north of Engelhard, Hyde County,

October 24, 1939. There is the skin of another in the National Museum taken at Fort Macon, near Beaufort, in September, 1869.

Writing of this bird in the Asheville territory, Burleigh said: (MS.) "This was one species that appeared rather out of place in these mountain valleys, but while never plentiful it was of regular occurrence both in the spring and in the fall, feeding about thickets at the edges of the open fields in the same manner as the House Wren. . . . My extreme dates for occurrence in the spring are May 1 (1931) and May 24 (1934), and in the fall, September 17 (1933) and October 23 (1930)."

"Twenty-five male Long-billed Marsh Wrens from Raleigh and two from Weaverville, measure: wing 1.87-2.12 (av. 2.00), tail 1.56-2.00 (av. 1.73). Five females from Raleigh run: wing 1.68-1.93, and tail 1.37-1.56. These measurements are nearer those of *dissaeptus* than those of *palustris*." (C. S. Brimley.)

Genus **CISTOTHORUS** Cabanis.

SHORT-BILLED MARSH WREN.

Plate 37

Cistothorus stellaris (Naumann). [724]

DESCRIPTION. Upperparts, including top of head, streaked with black, white, and buff; underparts white without bars; the under tail-coverts, flanks, and a partial band across breast, buffy. Length 4.00; wing 1.75; tail 1.40.

RANGE. Breeds from southern Canada to Kansas and Cornfield Harbor, Maryland; winters from southern New Jersey to the Gulf Coast.

RANGE IN NORTH CAROLINA. Transient and, at least to some extent, a winter visitor.

Perhaps the Short-billed Marsh Wren, as a migrant or even as a winter visitor, is more plentiful in the State than we have thought, for it is skilled in keeping out of sight. It inhabits fresh-water marshes, damp meadows, and lowgrounds, generally where tall grass or bushes are found. At times it frequents broom sedge fields. It is very difficult to flush, its clicking alarm notes, something like the sound produced by striking two pebbles together, usually are the only evidence one may have that the bird is in the neighborhood. If one is fortunate enough to observe a specimen clearly, it may be noted that the underparts are striped (not barred), and the line over the eye is not conspicuously white.

We have records of the Short-bill appearing in Carteret County in October, in Hyde County in October and November, and in Beaufort County in September. Odum notes it at Chapel Hill for April 28 to May 12, 1932; and in autumn on August 19, 1932, and October 6 and 7, 1933. On December 28, 1939, Walker and Grey found three on Pea Island. E. L. Green, Jr., reported it present, but not common, at Cape Hatteras, October 3 to April 30, 1936 and '37. H. H. and C. S. Brimley have noted the birds at Raleigh only on three occasions, September 20, 1893; May 4, 1894; and August 10, 1894.

Burleigh says: "This secretive little wren was a somewhat scarce migrant at Asheville, and was noted only at infrequent intervals. It is observed but once in the spring, a single bird at Swannanoa, May 3, 1934, while in the fall my extreme dates of occurrence are September 22 (1932) and October 12 (1933)."

Wetmore observes: "Search for them should be made in the Currituck Sound area in the nesting season."

Family **MIMIDAE**. Mockingbirds and Thrashers.

An exclusively American group of birds, apparently allied to the wrens on one hand and the thrushes on the other. The species are all medium-sized, rather plain-colored birds with comparatively short wings and long tails.

Members of this family are confined to the Americas. Of the seventy or eighty species, only about a dozen inhabit the land north of the Rio Grande River, which means that the family is largely tropical or subtropical in its distribution. Of the mockingbirds, especially, there are many kinds. They vary from one another somewhat in feather markings but all have much the same characteristic habits and movements which serve to emphasize their relationship to our famous singer of the Southern States.

Genus **MIMUS** Boie.

EASTERN MOCKINGBIRD.

Plate 38

Mimus polyglottos polyglottos (Linnaeus). [703]

Description. Ashy above, white beneath; wing and tail blackish with large white patch on the wing and white spots at the end of most of the outer tail-feathers. Length 9.12-10.50; wing 3.85-4.60; spread 12.75-14.75; tail 4.14-5.12.

Range. Maryland and eastern Nebraska to the Gulf Coast.

Range in North Carolina. Whole State, most abundant near the coast.

The Mockingbird, although reported occasionally in the mountain country, is found to be much more increasingly abundant as one approaches the coast. It breeds from April to June, although at Raleigh, C. S., Brimley once found a nest with eggs as late as July 5. The nest is built in almost any convenient bush or tree. Of two dozen nests we recorded, seven were in mulberry trees, four in apple trees, three in cedars, two in briars, one in a pine, one in a honeysuckle vine, one in a plum tree covered with honeysuckle, one in an oak, one in a rose-bush, one in a thornbush, one in a sweetgum, and one in a grapevine. The eggs number from three to five. They are pale greenish-blue or dull buffy in ground color, and are marked with spots and blotches of various shades of brown. Size .95 x .70.

The nest is constructed of sticks, moss, grass, rootlets, rags, "rabbit tobacco," scraps of newspaper, and other available material, making a rather bulky and untidy structure. It is usually built at a height of from four to twelve feet from the ground.

The Mockingbird is our most masterly songbird. In addition to its own song, it possesses the wonderful power of imitating the notes of other birds. We have heard it reproduce the notes of the Brown-headed Nuthatch to perfection and have been misled by its copy of the Killdeer's cry. It pours forth a perfect torrent of song with great variation and sweetness. Sometimes it sings as it flies from one perch to another. While perched on a house roof or perhaps a chimney, it will often fly almost straight upward for a short distance and then drop again to its perch without, for an instant, interrupting the flow of its melody. Frequently it renders its best musical performances close by one's open window on a hot

moonlight night, when one's chief desire is for sleep. Most of us, however, are quite ready to forgive it for these occasional disturbances. It sings almost throughout the year.

Fig. 83. Mockingbird.

Genus **DUMETELLA** S. D. W.

CATBIRD.

Plate 38

Dumetella carolinensis (Linnaeus). [704]

DESCRIPTION. Dark slaty-gray; crown and tail black; under tail-coverts chestnut. Length 8.35-9.12; wing 3.35-3.75; spread 11.25-12.50; tail 3.50-4.08.

RANGE. Breeds from Alberta and Nova Scotia to southeastern Texas and northern Florida; winters from North Carolina to Cuba and Panama.

RANGE IN NORTH CAROLINA. Whole State in Summer; wintering sparingly in the east and rarely as far west as the mountains.

Although summering in most parts of the State, Catbirds are found in the coastal regions far more abundantly during the spring and the autumn migrations. From Orange and Wake Counties eastward they appear to be a regular, but uncommon, winter resident. In the mountain counties they are almost wholly unknown at that season. We have a recent record (December 24, 1938)

of one being found at Brevard, Transylvania County, by Rachael, Oliver, and Mark Taylor Orr, but we are inclined to regard this as an exceptional incident.

Along in the latter part of March, spring arrivals begin to appear and in April comes the great flood of Catbird migrants from the south. Immense numbers pass onward to the north, but many soon settle down to domestic duties. May and June are the chief months for nesting activities.

Their nests, made of twigs, dead leaves, and grasses, and lined with fine roots, are hidden in briars, bushes, or trees with dense foliage. Generally they are built at heights ranging from three to fifteen feet, but Pearson, H. H. Brimley, and Bruner have seen nests fifty or sixty feet above the earth. Four or five greenish-blue eggs are laid.

The Catbird's song resembles that of the Mockingbird, but the notes are not delivered with the marvelous easy flow and spirit of abandon that characterizes the performances of its famous relative. Its name is derived from its catlike *meow*, which is such a clever imitation that C. S. Brimley has seen kittens misled by the cry. Catbirds dearly love to eat strawberries!

Genus **TOXOSTOMA** Wagler.

BROWN THRASHER.

Plate 38

Toxostoma rufum (Linnaeus). [705]

Description. Cinnamon-brown above; underparts white, more or less tinged with buff, and heavily streaked with black except on the throat and middle of belly; whitish band on the wing-coverts. Length 8.00-8.75; wing 3.30-3.50; spread 11.25-13.50; tail 3.24-3.50.

Range. Breeds from Alberta and Maine to Florida and the Gulf Coast. Winters from Missouri and North Carolina to the Gulf and central Texas.

Range in North Carolina. Whole State in summer; wintering to some extent.

The Brown Thrasher, which is the "Merry Brown Thrush" of our childhood books, is a widely distributed summer bird in North Carolina. Wherever there are trees and thickets, it is fairly certain to be found. It arrives from the south in March or April and mounting to some limb or treetop, pours out a song of much length and great variety, which is only excelled by that of the Mockingbird.

The status of its winter distribution in the State appears to be somewhat like that of the Catbird, but it occurs much more regularly. It is seen rather often at that season in the eastern two-thirds of North Carolina, but so far as we know it does not usually range much west of there. Pearson found one at Chapel Hill on January 2, 1889; Odum reports that others have seen it there in winter of recent years. Two records only have come to us from the mountains; these were from Brevard where Rachael, Oliver, and Mark Taylor Orr saw two on December 24, 1938; and at Bent Creek, Buncombe County, Burleigh found one on January 20, 1930.

The nest is built in briars, vines, old pear trees, and many similar situations, but generally not at a great distance from the ground. Armfield reports finding freshly laid eggs at Greensboro at dates varying from April 26 to June 12. The eggs are thickly covered with minute brown spots and vary from three to six in number.

The Brown Thrasher feeds very largely on white grubs, beetles, spiders, grasshoppers, caterpillars, and other insects. It picks up scattered grains of corn, and in summer varies its diet with a small amount of wild and cultivated fruit. Much of its food is gathered on the ground, the bird doing its "scratching" with its bill and not with its feet.

☆ Seven new winter records through the mountains are added to numerous such records to the eastward. ☆

Family **TURDIDAE.** Thrushes, Bluebirds, Stonechats, and Solitaires.

There are a great many varieties of thrushes distributed throughout the world; Europe particularly is richly supplied with them. Even in the Western Hemisphere, some 750 species and subspecies are recognized. Nine of these, classified under three genera, have been found in North Carolina.

Thrushes inhabit wooded regions, and are migratory in habits. Among them are some whose vocal powers are such as to produce avian music of surpassing sweetness. All are highly insectivorous although at times many eat both wild and cultivated fruits and berries.

Genus **TURDUS** Linnaeus.

EASTERN ROBIN.

Plate 39

Turdus migratorius migratorius Linnaeus. [761]

DESCRIPTION. Grayish-slate above; the top and sides of head black; underparts rufous except throat which is white streaked with black and middle of belly which is white; tail blackish, the outer tail-feathers with white spots near their tips. Females are paler and immature birds in nesting plumage are mottled above and below. Length 10.00; wing 4.96; spread 15.25-16.35; tail 3.87.

RANGE. Breeds from Alaska eastward to Newfoundland and southward to Ohio and mountains of Tennessee. Winters from New England to the Gulf Coast.

RANGE IN NORTH CAROLINA. Whole State in winter and during the migrations.

No bird in North America is seen in so many dooryards and gardens as is the robin, whose song and call notes are among the most characteristic sounds of spring. It is the delight of millions. In the country it is a farmyard bird, being rarely seen in heavy forests. It greatly enjoys hunting angle worms on the lawns and with great vigor draws the reluctant, squirming creatures from their lurking places in the sod.

Of the two subspecies found in North Carolina, the Eastern Robin from the north is here only as a migrant and winter visitor, at least there appears as yet no positive proof that any individuals breed in the State, although for some time there has been the feeling that in summer it inhabits the higher mountains. After careful, painstaking study of those on Mount Mitchell, our highest mountain, Burleigh found that the robins breeding there were not the northern variety.

The Eastern Robin swarms in North Carolina during the winter and probably makes up the larger part of the flocks that sometimes collect in cedar thickets by

hundreds of thousands to pass the night. In days gone by, killing these birds at night in a "robin roost" was one of the delights of the countryside, and robin pies the next day furnished gastronomic joys to many. Laws, the passage of which were sponsored by the Audubon Society, and the enforcement of which has been carried on by State and Federal officials, have brought robin killing to an end in the State.

SOUTHERN ROBIN.

Turdus migratorius achrusterus (Batchelder). [761b]

Description. Somewhat smaller, with plumage paler and duller than the preceding. Wing about 4.80; tail about 3.60.

Range. Breeds from Illinois and Maryland to Mississippi, central Alabama, northern Georgia, and western South Carolina; winters southward to the Gulf of Mexico.

Range in North Carolina. Breeds over most of the State and may be to some extent a winter resident.

This is the robin that breeds commonly in North Carolina. It is merely a slightly smaller and lighter-colored form of the Eastern Robin which in summer inhabits the northern States and Canada.

The breeding range of our robin in the eastern fourth of the State is not well defined. Pearson found three pairs with nests at Belvidere in Perquimans County, April 15, 1898; E. R. Greene said they bred "sparingly" in Hyde County (1934-36); Sherman found robins in Gates County, July 18, 1909; C. S. Brimley saw some in Moore County in late June, 1909; and Burleigh reported others breeding in Beaufort County, May 22, 1932. Between these regions and the Atlantic Ocean, so far as we are aware, no nests have been discovered, and it appears to be unknown as a summer bird in the southeastern coastal counties.

Writing of robins about Asheville, Burleigh has said: "Although the northern race of the Robin has heretofore been considered the breeding bird here in western North Carolina specimens taken during the summer months were found typical of this southern form. It was plentiful then, and widely distributed, occurring both in the open valleys and about clearings well up in the mountainsides. A few scattered birds remained during the winter months, but it was not until the latter part of February that it was noted in any numbers."

The robin usually builds its nest in a tree, but it may also be found on a veranda joist, on the end of a stick of corded wood, or on a fence post protected by an overhanging limb. Always the structure is given a certain rigidity by means of a mud cup which the birds shape by pressing their breasts against the walls and turning their bodies. This cup is lined with dry grasses. The blue eggs usually are four in number.

Robins are partial to worms, but eat insects and fruit, including mulberries and the most luscious cherries it can find ripening in the garden.

Genus HYLOCICHLA Baird.

This genus contains some of our very finest woodland musicians which, combining with other species, produce in spring and summer the great avian chorus

that adds so much to the spiritual and aesthetic elements of life in our beautiful countryside.

None of these birds are brightly colored like the oriole or the cardinal; all are demurely dressed in a brown cloak, and all bear at least some dark markings on the white breast.

They should not be confused with the Brown Thrasher, often erroneously called "Brown Thrush." That bird technically belongs to an entirely different group that includes the Catbird and the Mockingbird. The thrushes are persistent destroyers of insects and as such are now safeguarded both by State and Federal laws.

Six members of this genus are listed among the birds of North Carolina. To identify all of them without careful study with a field glass is hardly to be expected. However, the Wood Thrush is so abundant in summer, is such a charming singer, is so common on lawns and in groves, and is so distinctly marked with round spots on its breast, that a large part of our people are well aware of its presence.

Any thrush seen in winter is very sure to be the Hermit Thrush, for it is the only one seen at that time of year. It is small, very retiring, and its rump and tail are much more rufous than is its back, head, and wings.

WOOD THRUSH.

Plate 39

Hylocichla mustelina (Gmelin). [755]

DESCRIPTION. Cinnamon-brown, brightest on head and becoming olive on the rump; underparts white with large round, distinct, black spots except on the throat and middle of the belly. Length 7.50-8.25; wing 4.10-4.50; spread 12.75-13.75; tail 3.00-3.25.

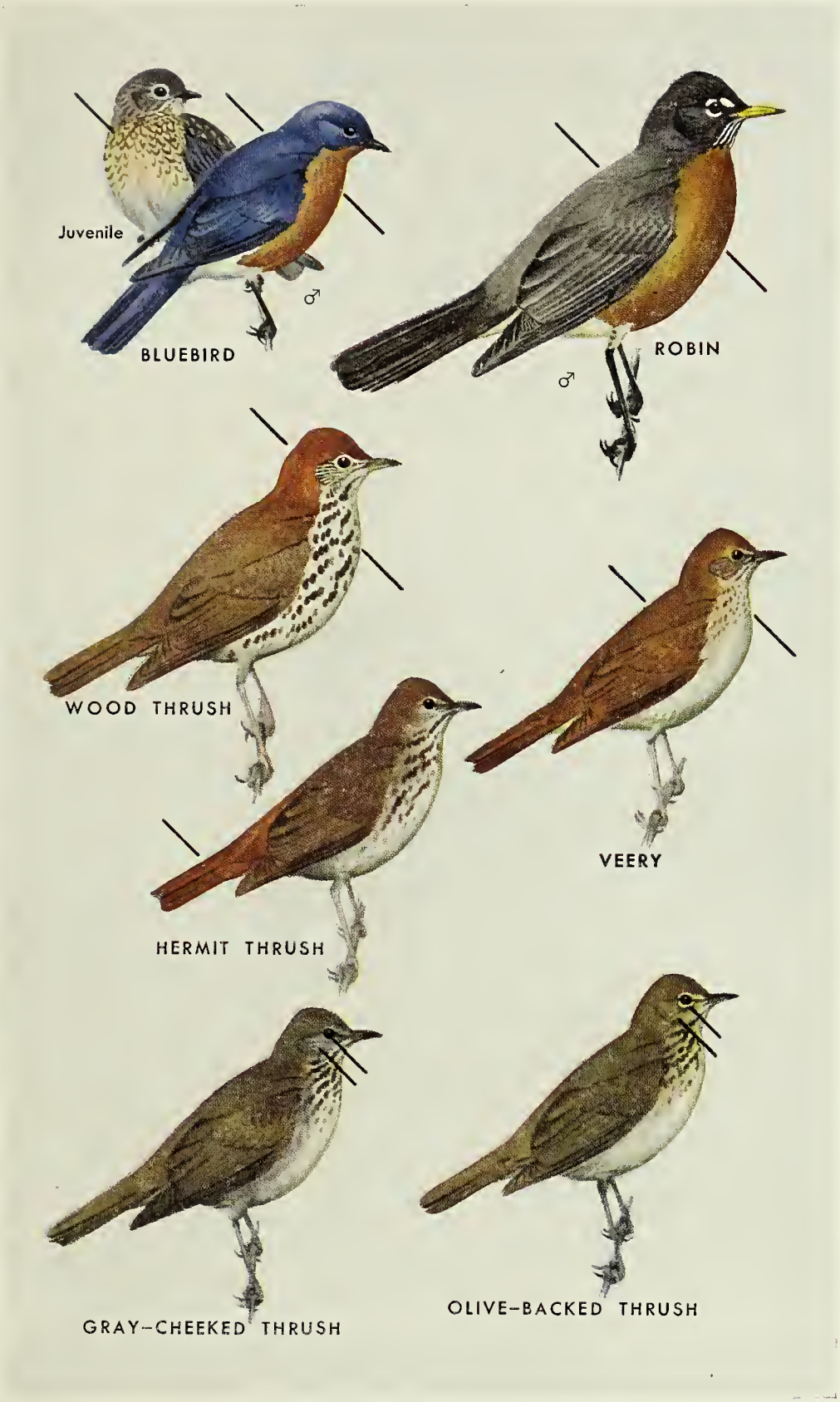
RANGE. Breeds from Minnesota and Ontario to eastern Texas and northern Florida. Winters from southern Mexico to Panama.

RANGE IN NORTH CAROLINA. Whole State in summer from April to October.

The Wood Thrush, known locally as the "Swamp Robin" and in some places as the "Quillaree," is partial to areas where large trees are found, as in swamps, in many towns, and on the campus of various colleges. They become common after spring weather has definitely arrived, but have been noted on April 8 in both Buncombe and Forsyth Counties, and on April 10 in Rowan County. May is the chief month for building nests, although eggs have been found as early as April 30 in Cumberland County.

The nest is generally placed in the main fork of a young tree about eight or ten feet from the ground. It is a substantial structure of twigs, weed stalks, many dried leaves, and often pieces of paper. It has a mud lining like that used by the robin, and the interior is lined with rootlets. The eggs number three to five and are greenish-blue, being noticeably lighter colored than those of the Catbird.

This bird sings most melodiously, the loud and liquid notes sounding with great sweetness, particularly in the early morning and in the stillness that follows many a springtime shower. Its food consists chiefly of insects and in the autumn many berries of the dogwood and other trees and shrubs are eaten. October is the month for departure for its winter home below the Tropic of Cancer, our latest record having been made at Raleigh on October 18.



THRUSHES, ROBIN AND BLUEBIRD.

☆ Early dates are for Wilmington (March 24th), Raleigh (April 5th) and Highlands (April 5th). ☆

EASTERN HERMIT THRUSH.

Plate 39

Hylocichla guttata faxoni Bangs and Penard. [759b]

Description. Upperparts olive-brown; the upper tail-coverts and tail rufous in decided contrast to color of back; flanks olive-brownish; rest of underparts white tinged with buffy on breast which is rather heavily spotted with dusky. Length 6.50-7.65; wing 3.40-3.90; spread 11.00-11.75; tail 2.55-3.15.

Range. Breeds from the Canadian Provinces southward and along the mountains to Virginia. Winters from New England (locally) to Florida.

Range in North Carolina. Winter visitor throughout the State, arriving in October and leaving in April.

The Eastern Hermit Thrush is smaller than a robin; in fact, it is only about an inch longer than the well-known English Sparrow. During migration, when two or three kinds of thrushes may be present in the neighborhood, it is easy to tell which is the Hermit because its reddish-brown tail is noticeably different in color from the olive-brown of the back and wings. No other thrush has this distinctive marking.

It is a common winter resident in North Carolina. The earliest arrival of which we have a record was one seen at Raleigh on October 15 (1885), and its latest known appearance was at Weaverville, Buncombe County, on May 15 (1891).

This bird stays mainly in heavy, damp woods and in thick growth along streams, but may appear in your yard or garden, usually in a low tree or on the ground. In winter its food consists to a considerable extent of wild berries, among which are those of the privet, poison ivy, holly, and dogwood. Although in its northern summer home it is regarded by many as the sweetest songster of the woodlands, it is, while with us, one of the most silent of birds.

☆ Contrary to the above sentence, the spring song of this bird can be heard here before its departure. ☆

OLIVE-BACKED THRUSH.

Plate 39

Hylocichla ustulata swainsoni (Tschudi). [758a]

Description. Uniform olive-brown above, including tail; whole throat and breast with a strong buffy tinge; breast with roundish black spots; sides brownish-gray, unspotted; a *buffy ring* around the eye; and the *sides of the head* strongly tinged with buff. Length 6.35-7.55; wing 3.60-4.00; spread 12.00-12.50; tail 2.80-3.30.

Range. Breeds in Canada, western United States, and from Maine southward in the mountains regularly to West Virginia. Winters from southern Mexico to Argentina.

Range in North Carolina. Regular, but uncommon, spring and fall transient.

If, during migration, a thrush that is uniformly olive-brown above, comes to your attention, it may be an Olive-backed Thrush. Look carefully for the buffy

eye-ring and cheeks. If cheeks are gray, then you must be gazing at the less frequently seen Gray-cheeked Thrush.

The Olive-backed appears in North Carolina in September and October. Specimens have been identified at Chapel Hill by Pearson, September 26 and October 9 (1897), and by Odum and Coker between September 23 and October 15 (1931-1933). Kopman saw it at Blowing Rock, September 12, 1898. Among the dates of its appearance in spring are those of Coker at Chapel Hill, May 15 and 16 (1931), and C. S. Brimley, at Raleigh, April 22 to May 28, during a period of many years.

Cairns found it in Buncombe County in April, and according to Smithwick's *Ornithology of North Carolina* (1897) Cairns discovered a nest on Craggy Mountain, May 20, 1896. Minot Davis, in filling in a U. S. migration bird schedule for 1899, says it has been found twice in summer in the mountains of North Carolina.

While in this State, the Olive-backed is a quiet, unobtrusive bird, occurring in orchards and woodlands and occasionally appearing in the yard or garden. In the evergreen forests in Maine, Pearson was greatly impressed by the evening concerts of bird music made up entirely of the songs of the Olive-backed and Hermit Thrushes. The song of the Olive-backed much resembles that rendered by the Veery.

☆ Later departure dates are November 16th (Wilmington), October 27th (Henderson and Greensboro), and October 20th (Highlands and Raleigh). ☆

GRAY-CHEEKED THRUSH.

Plate 39

Hylocichla minima minima Lafresnaye. [757]

DESCRIPTION. Similar to Bicknell's but larger. Length 7.00-7.75; wing 3.75-4.40; spread 12.63-13.12; tail 2.95-3.40.

RANGE. North and South America, breeding far northward and wintering in Central and South America.

RANGE IN NORTH CAROLINA. A rare migrant.

The cheeks of this bird are gray, which, as indicated in discussing the Olive-backed Thrush, is one of its characteristic colorations. We have but few records of this rare migrant. Coues recorded it at Fort Macon, in April and May, 1871; Cairns saw it at Weaverville, September 20-22, 1890; and C. S. Brimley has taken specimens at Raleigh in the spring between May 11 and 24, and in the fall from October 2 to 12. Craighill identified one at Rocky Mount, October 12, 1936. Wetmore records one at Clinton, May 6, 1939, and Burleigh found two at Mount Mitchell, September 21, 1932.

The following notes from the Asheville region have been supplied by Burleigh: "At rare intervals, as in September, 1931, the Gray-cheeked Thrush has been fairly plentiful about Asheville, but it normally is rather uncommon in the fall and extremely scarce in the spring. My few records for the spring migration are single birds seen May 18, 19, and 21, 1930, while in the fall my extreme dates of occurrence are September 8 (1931) and October 26 (1933). All specimens

taken were found referable to this more northern race, and included the following: males May 21 and September 19, 1930, September 22, 1931, October 8, 1932, and September 28, October 2, October 21, and October 26, 1933, and females September 8, September 23, and October 9, 1931, and September 26, 1933."

☆ An earlier record is March 9th and a winter record is December 28th (Wilmington). ☆

BICKNELL'S THRUSH.

Hylocichla minima bicknelli Ridgway. [757a]

Description. Olive-brown above; white beneath; the sides brownish-gray; the breast very slightly tinged with buff; sides of head grayish; eye-ring whitish; breast spotted with black. Length 6.25-7.25; wing 3.40-3.80; spread 10.87-11.69; tail 2.60-2.90. Averaging smaller than the Gray-cheeked.

Range. Breeds in the Catskill Mountains of New York and north to the St. Lawrence River; winters from southeastern United States to northern South America.

Range in North Carolina. A rare transient.

Before 1919, H. H. and C. S. Brimley reported that specimens of the Bicknell's Thrush had been taken by them at Raleigh between May 3 and 18 in spring and from September 24 to October 12 in the autumn. At that time Cairns had reported it at Weaverville from September 11 to November 10, and said that he had collected one on Black Mountain in September. We had no additional records of this species for the State until Wetmore reported one taken at Southport, May 12, 1939.

"The Gray-cheeked and Bicknell's Thrushes differ more widely in name than in anything else. As a matter of fact, they are representatives of one and the same species which, in the northern parts of its range, is somewhat larger than it is in the southern parts of its range. But here the difference stops, the northern bird (*aliciae*) resembling the southern bird (*minima*) in notes and habits; while the difference between them in size is so slight that during their migrations, where both might be expected to occur together, it would be impossible to say which bird was under observation. During the nesting season, however, it will be safe to call any olive-backed, gray-cheeked thrush found south of the St. Lawrence, Bicknell's, and all to the north of that river, the Gray-cheeked." (*Chapman.*)

VEERY: WILSON'S THRUSH.

Plate 39

Hylocichla fuscescens fuscescens (Stephens). [756]

Description. Light tawny-brown; chest creamy-buff with narrow markings of brown, which are much smaller and fewer than in any of the preceding members of the genus. Length 6.45-7.75; wing 3.75-4.15; spread 11.50-12.63; tail 2.70-3.30.

Range. Breeds from Michigan and Quebec southward to northern Ohio and along the mountains to Georgia. Winters in South America to Brazil.

Range in North Carolina. Transient in eastern and central sections; breeds in the mountains above 3,500 feet.

The Veery is an exquisite musician. Pearson once wrote: "I have listened to its song literally thousands of times during the past quarter of a century in the forests that in places clothe the shores of Lake Champlain. Its song is a *whe-u, whe-u, whe-u, whe-u,* repeated usually five or six times, and again resumed a few seconds later. The first of the series of double notes is loud, the following ones decreasing in tone as if the clarion music was descending some reverberating silver coil. It is a haunting melody. The evening chorus of the Veery continues until dark."

In most of the State we know this thrush only as a migrant in April and May and again in September and October. Cairns claimed that it bred in Buncombe County in May. Rhoads reported seeing a pair building a nest on Roan Mountain in June, 1895; Wetmore has a juvenile "recently from the nest" taken at 5,500 feet elevation on Rocky Bald Mountain, June 23, 1939; and Burleigh found a nest on Mount Mitchell, June 6, 1930, which held two fresh eggs. A pair nested in the spring of 1941 on J. Cliff Crawford's farm near Statesville.

WILLOW THRUSH.

Hylocichla fuscescens salicicola Ridgway. [756a]

DESCRIPTION. Similar to preceding, but slightly darker on back, and with the spots on the breast darker and slightly larger; the size also averages a little larger but the measurements mostly overlap.

RANGE. Rocky Mountain region and westward in summer; wintering south of the United States. Casual east during the migrations.

RANGE IN NORTH CAROLINA. Accidental.

A single specimen picked up dead at Raleigh by G. M. Garren on September 9, 1937, is our only record of this form. The specimen was determined by Oberholser. Pearson states that in southern Utah he found the birds common and located several of their nests built in willows growing about beaver ponds formed by damming streams that, coming from the mountains, flow through the semibarren sagebrush country.

☆ On September 4, 1955, Henry Rankin, Jr., picked up two of these birds in the grass under his picture window on Raeford Road, three miles west of Fayetteville.

Dr. John Aldrich, U. S. National Museum, confirmed the identification as Hylocichla fuscescens salicicola. ☆

Genus **SIALIA** Swainson.

EASTERN BLUEBIRD.

Plate 39

Sialia sialis sialis (Linnaeus). [766]

DESCRIPTION. Male: bright blue on upperparts, wings, and tail; the throat, breast, and sides cinnamon-rufous; the belly white. Female: much duller and more grayish, the blue brightest on wings, and speckled. Young in nestling plumage much mottled. Length 5.75-7.00; wing 3.90-4.15; spread 11:65-12.15; tail 2.60-2.90.

RANGE. Breeds from Newfoundland to the Gulf Coast; winters mainly in the Southern States, casual to New York.

Range in North Carolina. Whole State at all seasons.

The Bluebird is one of our most familiar birds. It nests in natural hollows in trees and in bird boxes erected for its accommodation. Hundreds of them every year utilize mail boxes along rural-mail delivery routes, and the birds themselves are seen on telephone wires by the roads everywhere. In nesting, the bottom of the hollow selected is lined with grass, and in this simple cradle, the Bluebird lays its four or five pale blue eggs. Occasionally white eggs are found, and when this is the case, the whole set is white. At Greensboro, Armfield has found eggs as early as April 5, and at Raleigh the Brimleys have seen them as late in summer as July 26.

J. C. Allison, of Raleigh, states that in the summer of 1935 a pair reared three broods of young in a bird box in his yard, and that the members of the second brood helped their parents feed the third set of young birds. This unusual family co-operation was noted on July 23. He further reported that the third nest was started while the parents were still feeding the second brood in the immediate neighborhood.

In summer the Bluebird feeds mainly on insects and in winter chiefly on various kinds of berries. In February, 1895, a blizzard covered the earth and trees with ice for many days. Bluebirds, thus being unable to procure food beneath its glittering mantle, were starved and frozen by thousands. The species through virtually the whole of the eastern United States suffered in the same way, and apparently came very near being extirpated. For many years subsequently it was a rare sight to see one. It is only in recent years that it has again become abundant. The resident population is greatly swollen in autumn when migrating bluebirds arrive from regions farther north.

☆ In recent years there was some alarm at the loss of these birds from being trapped in a new type of oil furnace for tobacco barns. An educational program seems to have corrected this situation. ☆

Family **SYLVIIDAE**. Gnatcatchers and Kinglets.

This is a very large family of very small birds. For purposes of scientific nomenclature, it has been divided into three subfamilies, each one exhibiting certain distinctive characteristics. One of these subfamilies, called *Sylviinae,* is composed of the so-called Old World warblers of which there are more than five hundred distinct species. Only one bird of this group is found in the Western Hemisphere. It is known as Kennicott's Willow Warbler. It spends its summers in western Alaska and passes the winters in southeastern Asia.

A second subfamily is the *Polioptilinae,* or gnatcatchers. This is distinctly an American group. Of the fifteen known species, three dwell in the United States. One of these is a North Carolina bird. The remaining subfamily *Regulinae,* or kinglets, numbers seven members, two of which are found in North Carolina and both are well-known to bird students of this State.

Subfamily **POLIOPTILINAE.**

Genus **POLIOPTILA** Sclater.

BLUE-GRAY GNATCATCHER.

Plates 35 and 38

Polioptila caerulea caerulea (Linnaeus). [751]

DESCRIPTION. Bluish-gray above, pale grayish-white beneath; forehead and sides of head narrowly bordered with black in male, not in female; outer tail-feathers white; middle ones black. Length 4.00-5.50; wing 2.00-2.20; spread 6.25-6.95; tail 2.05-2.20.

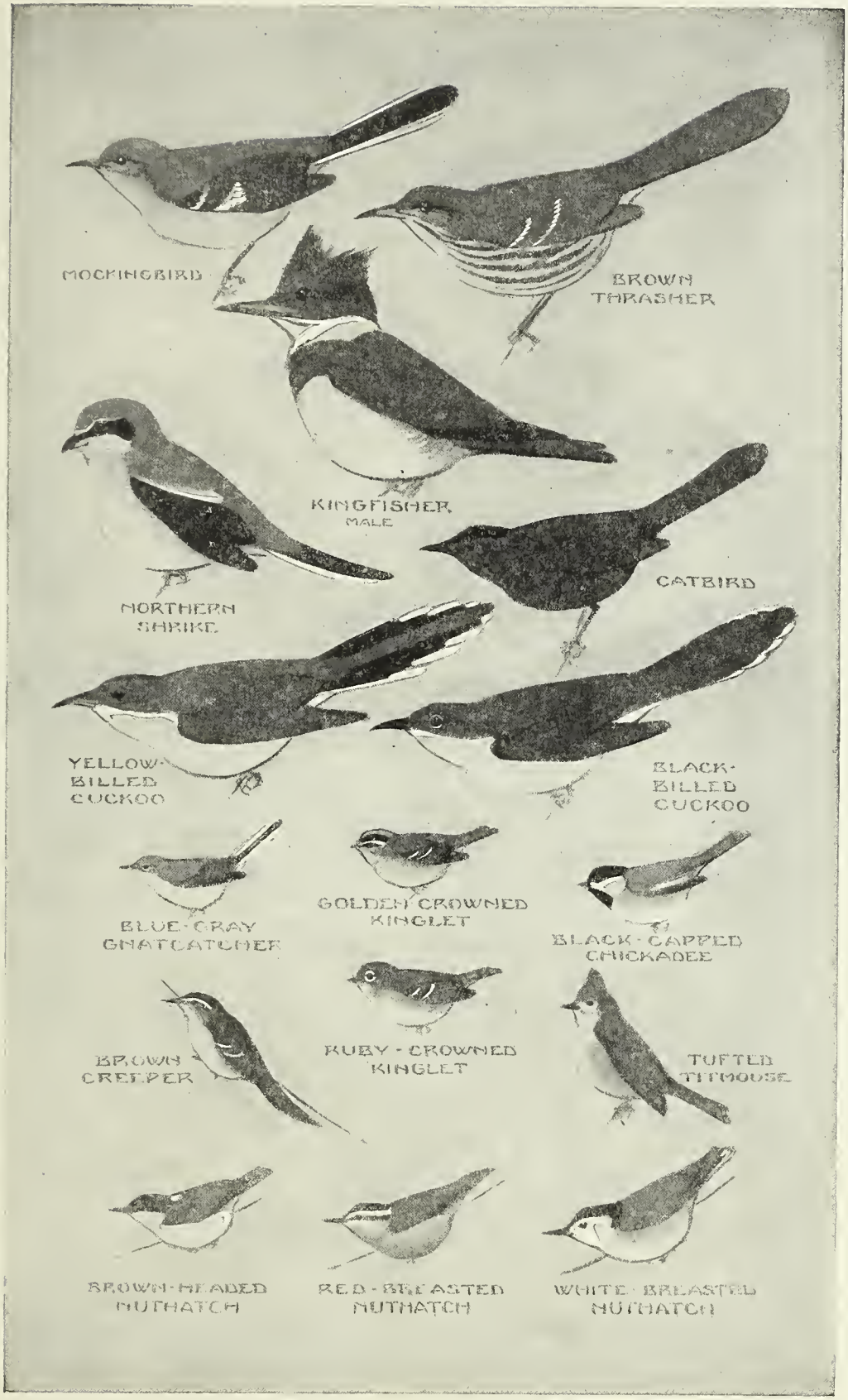
RANGE. Breeds from Wisconsin and Ontario to the Gulf Coast and central Florida; winters from North Carolina (rarely) to northern South America.

RANGE IN NORTH CAROLINA. Summer resident; winters rarely on coast.

Fig. 84. Blue-gray Gnatcatcher.

In spring the Blue-gray Gnatcatcher begins to appear in central North Carolina about the middle of March. At Raleigh, it has been recorded in autumn as late as October 2, and noted in Buncombe County as late as September 9. It is a common species, easily recognized by its long black tail, bluish-gray color, and squeaky, high-pitched notes. It breeds from late April to early June, building a pretty lichen-covered nest which resembles a large model of that made by the Ruby-throated Hummingbird. It is saddled on the lateral limb of a sweetgum, birch, pine, oak, willow, apple, ash, cedar, or other tree, at heights varying from five to thirty-five feet. Both sexes aid in its construction. The eggs are five or six in number and are greenish or bluish-white in ground color, speckled with chestnut. Size .57 x .44. Pearson found that in Guilford County these birds seemed to show a decided preference for white oak trees as nesting sites. On two occasions he saw a male singing while sitting on the nest—a very unusual performance for any bird engaged in the duties of incubation. The notes are not particularly attractive, but the little song is really quite melodious.

Although it had long been believed that the Blue-gray Gnatcatcher never



Courtesy of Roger Tory Peterson

passes the winter north of South Carolina, we now have three definite records of it being found in Currituck County, North Carolina, in December. Ludlow Griscom, Johnson, and Nicholls saw one on Monkey Island, December 30 and 31, 1916; and Pearson observed three at close quarters on the southern end of Knotts Island, December 20, 1928. Three more recent records are one on Collington Island, Dare County, January 10, 1938 (Stephenson and Howard), and one at Rocky Mount, December 12, 1939 (Craighill). Pearson saw one in Southport, November 3, 1941.

Subfamily **REGULINAE.**

Genus **REGULUS** Cuvier.

EASTERN GOLDEN-CROWNED KINGLET.

Plates 35 and 38

Regulus satrapa satrapa Lichtenstein. [748]

DESCRIPTION. Olivaceous above; whitish beneath; crown with a yellow patch bordered with black on sides and in front (orange-red in center in male); forehead and line over eye, white. Length 4.00-4.25; wing 2.10-2.25; spread 6.50-6.87; tail 1.60-2.00.

RANGE. Breeds from Michigan and Quebec southward along the higher Alleghanies to North Carolina; winters from Canada to northern Florida.

RANGE IN NORTH CAROLINA. Whole State in winter; breeding on some of the higher mountains.

This is a common winter visitor in the State, arriving about the middle of October and leaving in April. In the Raleigh region our earliest autumn record is October 7, and the latest spring record is April 19. While here it usually goes in troops, often frequenting groves of evergreens. At times it is so trusting as to permit an observer to approach within a few yards as it flits from perch to perch. It gathers its food of insects and spiders from the twigs and leaves of the trees among which it lives. Only four inches in length, it is, next to the hummingbird, our smallest feathered neighbor. Its notes are weak and high-pitched and may easily be overlooked by one who has not before made its acquaintance.

The nest, built among the slender twigs of spruces or other evergreens, is composed of green mosses, mixed with lichens, and lined with delicate strips of soft inner bark and black rootlets. Eight or ten spotted eggs are laid.

Its nesting operations in North Carolina have not been studied by many observers. Kopman's record of a bird on August 24, 1898, at Cloudland, Mitchell County, would point to their breeding in the vicinity of Roan Mountain. Feild and Bruner found young birds on Grandfather Mountain, June 24, 1911, at an elevation of 5,000 feet, and Brown saw young birds there in June, 1930.

Burleigh often noted it in the fir and spruce woods on Mount Mitchell, and stated: (MS.) "It is apparently a remarkably hardy species, for despite the severest weather small flocks of these diminutive birds were seen throughout the winter, varying little in numbers from year to year." He says they mate in April, begin nesting operations in June, and the broods appear in July.

☆ A lower nesting elevation of 3700 feet is added by Murray for Blowing Rock on August 5, 1932. ☆

Genus **CORTHYLIO** Cabanis.

EASTERN RUBY-CROWNED KINGLET.

Plates 35 and 38

Corthylio calendula calendula (Linnaeus). [749]

Description. Olivaceous above, buffy beneath; crown in male with a concealed crown patch which is usually bright red, but very occasionally yellow. Length 3.75-4.60; wing 2.20-2.30; spread 6.50-6.87; tail 1.85-1.90.

Range. Breeds throughout much of Canada and (casually) in Michigan and Maine; winters from Virginia to Guatemala.

Range in North Carolina. Winter visitor, transient in mountains.

Throughout most of North Carolina this kinglet is a winter visitor. It never seems to go in troops, although several may be found at a time in the same general neighborhood. It is most often noted during the migration periods. At Raleigh it has been found as early as October 1 and as late in spring as April 26. In the mountains it has been recorded between October 6 and November 6 in the fall and between April 1 and May 7 in the spring migration.

This bird has a habit of slightly fluttering its wings when hopping from twig to twig, and this custom, together with its pale orbital ring, will usually serve to identify it in the field, although many beginners in bird study mistake it for some quietly dressed warbler. It is a good singer and frequently indulges in its musical abilities during late March and early April.

Birds with a yellow crown patch appear to be quite unusual, as out of forty-four specimens taken at Raleigh by H. H. and C. S. Brimley, only three were found that showed any yellow on the head.

Family **MOTACILLIDAE.** The Wagtails and Pipits.

A family mainly of Old World species, of which only a very few of the dull-colored pipits occur in America. The wagtails, on the other hand, are exclusively Old World birds, except one. This one breeds in Alaska, but moves to and from eastern Asia.

The latter are handsome birds, black and white or with yellow underparts, and have much longer tails than the pipits. All the species of this family walk and do not hop.

Genus **ANTHUS** Bechstein.

AMERICAN PIPIT.

Anthus spinoletta rubescens (Tunstall). [697]

Description. Grayish-brown above; buffy below; the breast and sides streaked with dusky; a light line above eye. Length 6.00-7.00; wing 3.20-3.50; spread 10.25-11.12; tail 2.65-3.85.

Range. North America. Breeds in western North America. Winters from California and Delaware, southward to Central America.

RANGE IN NORTH CAROLINA. A transient in the mountains; winter resident elsewhere.

The Pipit, or Titlark, is an irregular winter visitor in eastern and central North Carolina from the latter part of October to about the end of March. Our earliest autumn record is October 17, at Raleigh, and our latest spring observation is May 16, at Pea Island. While here it travels in flocks, frequenting open fields, where the surface of the ground is comparatively bare. Its gait is a walk, not a hop, and it wags its tail continually as it moves.

In the mountain region it would appear to be a transient rather than a winter visitor, as Cairns records it from Buncombe County only in spring and fall. At Andrews it has been noted from October 29 to December 15 in autumn, and February 21 to March 22 in spring.

Fig. 85. American Pipit.

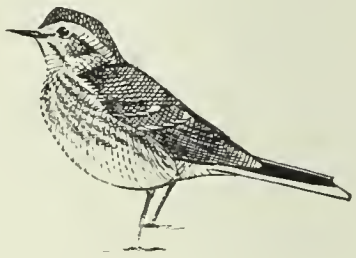


Fig. 86. American Pipit.

"Sometimes three or four may be seen together, but as a rule they come in flocks often of many scores. I have watched several running about on the damp ground of a rice-field from which the water had just been withdrawn. Once I saw them feeding like sandpipers on a sandy shore of Shackleford Banks near Beaufort Inlet. Late in winter, when plowing begins south of the Potomac River, you may expect to see flocks of these birds descend to the newly broken ground. In flight they undulate through the air, but at times have a drifting, uncertain butterfly manner of movement different from that of other birds." (Pearson, *National Geographic Magazine*, April, 1936.)

☆ The fall arrival date is extended to September 2nd (Hickory), and a spring departure is April 21st (Wilmington). ☆

Family **BOMBYCILLIDAE.** Waxwings.

Genus **BOMBYCILLA** Vieillot.

CEDAR WAXWING.

Bombycilla cedrorum. Vieillot. [619]

DESCRIPTION. Head crested, plumage soft and silky, cinnamon-drab in color; tail tipped with yellow, secondaries often with horny, waxlike appendages at tips looking like red sealing wax. Length 6.50-7.50; wing 3.60-3.90; spread 11.00-12.15; tail 2.30-2.60.

RANGE. Breeds from Canada to northern Georgia; winters throughout much of the United States and southward to Panama.

RANGE IN NORTH CAROLINA. Whole State, the seasonal distribution not well-known.

When a wandering flock of waxwings alights in a tree, its members often sit so close together that a single discharge of a shotgun might bring down thirty of them; in fact, we have seen this occur in the old thoughtless days before laws and public sentiment came to protect this well-groomed, genteel bird. This waxwing breeds locally in western North Carolina and rarely in the central or eastern parts of the State. Craighill says some spend the summer at Rocky Mount. This is one of the latest birds to begin breeding. A nest was found at Raleigh, June 13, 1890. J. J. Murray discovered one newly built at Blowing Rock, on August 12, 1929, and upon revisiting it on August 26, found it to contain four eggs.

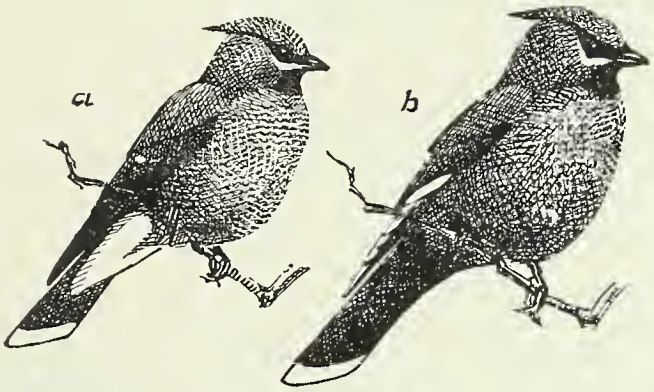


Fig. 87. (a) Cedar Waxwing. (b) Bohemian Waxwing.

C. S. Brimley has written:

"The Cedar Waxwing, also known as the 'Cedarbird' and 'Cherry Bird,' goes in flocks, except in the breeding season, being seemingly attracted to any particular locality by the extra supply of food there. It feeds on all sorts of berries, and is sometimes a nuisance, as when a big flock settles in a strawberry patch there is likely to be a considerable diminution in the number of berries before it departs. On the wing they fly very much as if they had been drilled, every bird seeming to move its wings in time with the rest, and a flock of Cedarbirds compared with a flock of blackbirds, for instance, looks very much like a company of regular soldiers by the side of a disorderly mob.

"The eggs, generally five in number, have a slaty ground color, tinted with olive, and are marked with blotches of dark brown and purple. Size about .85 x .60. The only nest I ever found was forty feet high on the horizontal limb of a pine, being constructed of weed stems lined with grass. The nest contained five eggs on June 13, 1890. I have noticed this species feeding on strawberries, mulberries, persimmons, frost grapes, and the berries of cedar, privet, holly, China tree, and *Ilex decidua.*"

Earl Hodel says at Elkin, waxwings are present "every month except May to September." Burleigh saw a pair gathering nesting material on Mount Mitchell, August 10, 1931.

Burleigh says of this species: "So erratic was the occurrence of this species at Asheville that I was always a little uncertain of its exact status. It possibly winters sparingly." He has no knowledge of it breeding in that section.

☆ Since 1942 the 210 records found generally confirm the above distribution by season and region. Much more observation is needed to make a definite pattern. ☆

Family **LANIIDAE.** Shrikes.

Upward of one hundred species and subspecies of shrikes are known, eight being found in North America. Three of these including two distinct species we are listing among the birds of North Carolina. Shrikes are hardy, robust, medium-sized birds with bills which are notched and fitted with a shark hook at the tip, thus enabling them to tear flesh like a bird of prey. Gray is the dominating color of our shrikes.

There is an old tradition, the truthfulness of which is sometimes denied, that the name comes from an old Icelandic word meaning "shriek." As the birds have a habit of hanging their prey on thorns, they are often spoken of as "Butcher Birds."

Genus **LANIUS** Linnaeus.

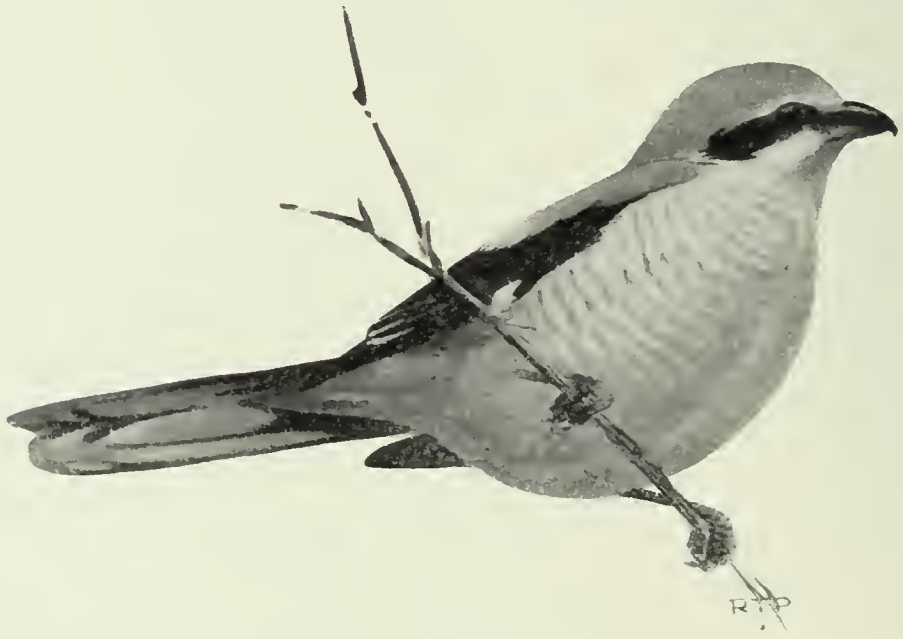


Fig. 88. Northern Shrike.

NORTHERN SHRIKE.

Plate 38

Lanius excubitor borealis Vieillot. [621]

DESCRIPTION. Gray above; white beneath; the underparts finely barred with dusky or blackish; wings, tail, and stripe on side of head through eye, black. Wings with a white patch at base of primaries, and tail with the outer tail-feathers, sometimes all, tipped with white; rump lighter than the back; black on side of head not extending across the forehead and the black of the lores often mixed with paler. Length 9.25-10.75; wing 4.35-4.60; tail 4.50-4.70.

RANGE. Breeds in eastern Canada. Winters southward to Kentucky and Virginia.

Range in North Carolina. Rare or accidental winter visitor.

This, the largest and fiercest of the North American shrikes, was given an acknowledged place in our avifauna when an immature male was killed on Pea Island, December 9, 1909, and sent to Bishop. Although this bird feeds chiefly on insects and mice, it at times captures small birds, including warblers and English Sparrows. In Canada and the northern States where it is chiefly found, it has been known occasionally to enter traps set by government bird-banders. When it does this, sure death awaits any small birds the traps may contain.

LOGGERHEAD SHRIKE: FRENCH MOCKINGBIRD.

Lanius ludovicianus ludovicianus Linnaeus. [622]

Description. Gray above; white beneath, sometimes tinged with gray; black band on each side of head, these meeting across the forehead; wings black, primaries white at base; tail black, tipped with white, the outer feathers mostly white. Length about 9.00; wing 3.82; spread 12.00-13.00; tail 3.80.

Range. Southern States from North Carolina south, resident.

Range in North Carolina. Apparently resident in most of the State.

In a suburb of High Point, Guilford County, a few years ago, the attention of several people was drawn to a bush on the thorns of which were impaled no less than fifteen small snakes. It was the larder of a "Butcher Bird," which in natural history books is called a Shrike. Whether this bird thus hangs up food for future use has not been definitely established. The authors of this book have not known shrikes to return to the grasshoppers, beetles, small lizards, or occasional birds that they had impaled on thorns, barbed-wire points, or other sharp receptacles. C. S. Brimley recalls finding a Myrtle Warbler hanging from a thorn, its dried body swinging in the wind.

Pearson once discovered a shrike with the body of a Chipping Sparrow which it had just impaled on a splinter at the butt of a tree that had fallen during a gale. The sparrow's skull had been opened at the back and the contents removed.

Shrikes are frequently seen perching on posts, telephone wires, or the tops of small trees. From such lookouts they watch the ground for their prey. We have seen one fly fifty yards and pick up a grasshopper which no human eye could detect in the grass at such a distance. When taking flight from one perch to another, this bird often drops abruptly at first, then with rapidly beating wings sweeps along near the earth until suddenly with a swift upward curve, it attains its destination.

There are two kinds of shrikes abroad in North Carolina, the Loggerhead and the Migrant. Their similarity is so marked that few students, careful of their reputation for accuracy, would venture to name a specimen seen in flight or perched by the roadside. Only by observing one closely under exceptional circumstances can positive identification be determined.

The summer range of the Migrant Shrike is thought by some to include the western half of this State, but we lack positive evidence that such is the case. The nest found at Greensboro by Brown, June 2, 1929, and those examined there by E. H. Hall over the years 1932 to 1938, as well as the birds seen by Sherman at Lexington and Salisbury in July, 1923, and those noted by Miss Boggs at

Waynesville in the summer of 1920, we regard as probably referable to the Loggerhead subspecies.

The Loggerhead is the shrike that breeds in eastern North Carolina. Nests found in Beaufort, Bladen, Brunswick, Cumberland, Lenoir, and Hoke Counties were undoubtedly built by this subspecies. A mile and a half north of Grissettown, in Brunswick County, Davis and Pearson, on May 5, 1939, found a Loggerhead's nest in an apple tree. In its construction clusters of seed cotton gathered from a near-by field had been used. Two young were being fed a few rods from the nest.

Fig. 89. Loggerhead Shrike.

The next day, in southern Columbus County, Davis, Pearson, and Wray found another nest in an apple tree nine feet from the ground. The sitting female, three fresh eggs, and the nest were collected for the State Museum by Davis. The nest was eight inches across the top and four inches deep. The inside cup was three inches across and two and one-half inches deep. The structure was composed of slender twigs, rootlets, "rabbit tobacco," and string. The inside was lined with chicken feathers. The eggs were greenish-gray with numerous spots of varying shades of purple, brown, and olive.

The same observers found two other nests on May 7, one in an apple tree in Bladen County (completed but no eggs as yet laid), and one in Johnston County in a wild cherry tree fifteen feet from the ground. Three young birds perched on a near-by barbed wire fence were fluttering their wings and begging shrilly for food. The shrike taken by Davis in Columbus County, proved upon close examination to be a Loggerhead, as were probably those whose nests were examined in Brunswick and Bladen Counties.

In winter Migrant Shrikes come down from the north and for some months both subspecies doubtless occur in the same regions. As evidence of this overlapping of ranges, it may be mentioned that on January 15, 1931, Burleigh

collected two shrikes at Tarboro, Edgecombe County, that were definitely determined to be, one a Loggerhead, the other a Migrant.

Regarding shrikes at Rocky Mount, Craighill, under date of May 30, 1939, wrote: "Shrikes are fairly common here, and their first crop of young are already out of the nest, but still being fed by the parents. A friend called me to ask what sort of bird was hanging things in his trees, and I found a shrike's cache in two small plum trees with a snake, crayfish, grasshopper and two young birds hung up. Last week I saw a shrike pursuing a small bird with evident felonious intent. I had never before seen that here except when there was snow on the ground and shrike food was scarce."

☆ More nesting records are from the counties of Wake, Vance, Stanly, Mecklenburg and Forsyth. ☆

MIGRANT SHRIKE.

Lanius ludovicianus migrans Palmer. [622e]

Description. Similar to preceding "but paler above and somewhat grayer below; the bill smaller, the wing longer." Measurements of Raleigh specimens, length 8.15-9.15; wing 3.65-4.00; spread 11.87-13.00; tail 3.25-4.15.

Range. Breeds from southern Canada to western North Carolina; winters irregularly from New England southward.

Range in North Carolina. Uncommon winter resident, possibly breeds in the mountains.

For notes concerning the habits and range of this bird, see discussion on the Loggerhead Shrike.

Burleigh contributes the following statement regarding his observations of this bird in the Asheville section: "The Migrant Shrike was noted both in the spring and in the fall, and rather sparingly during the winter months, but it was very irregular in its appearance, and never common. In the spring it was usually seen late in March or in early April, but in 1933 one bird lingered as late as May 1. Its arrival in the fall was so early that it was always one of the characteristic birds of the late summer months for in 1933 it was first seen July 28, and other years was invariably present the latter half of August. My winter records are all for the open Mills River Valley, single birds being observed there December 24, 1931, December 16, 1932, and December 18, 1933."

☆ New winter records are for Tarboro, Rocky Mount, Raleigh, Chapel Hill, Charlotte and the Smoky Mountains. ☆

Family **STURNIDAE.** Starlings.

Birds with a general resemblance to the *Icteridae*, but with ten well developed primaries instead of only nine.

The Starlings are exclusively an Old World family, but are represented in North America by two introduced species, the Crested Mynah (*Aethiopsar cristatellus cristatellus*, Linn.) in British Columbia, and the common Starling. Members of the *Icteridae* are often termed "Starlings" in English publications;

the terms "Red-winged Starling" and "Meadow Starling" thus are used for the birds we call Red-winged Blackbird and Meadowlark.

Genus **STURNUS** Linnaeus.

STARLING.

Plate 44, Fig. 8

Sturnus vulgaris vulgaris Linnaeus. [493]

DESCRIPTION. Sexes alike; black with greenish or purplish luster, more or less heavily or conspicuously speckled with light brown above, and whitish below. The light spots more extensive in winter; bill dark in winter, yellow in spring and summer; immature birds: mostly light grayish-brown. Length 7.50-8.50; wing 5.00; tail 2.50-3.00.

RANGE. Northern parts of the Old World, introduced elsewhere. Today found over much of eastern and central Canada and the United States.

RANGE IN NORTH CAROLINA. A widely distributed resident.

Many attempts have been made to establish European birds in a wild state in North America. But of all the scores, if not hundreds, of species thus introduced, only a very few have become acclimated. The Ring-necked Pheasant and the European Partridge are now breeding in some sections; British Goldfinches in flocks of at least fifty are flying about on Long Island, New York; European Tree Sparrows are established in limited numbers in Missouri; and bird lovers journey every summer to Vancouver Island, British Columbia, to hear the exotic Skylark sing and perhaps to see the Crested Mynah. None of these, however, has ever attained the biological success in this country that Nature has accorded to the English Sparrow and the Starling, whose hundreds of millions of descendants now find a place in the avifauna of North America.

When the first edition of this book was published in 1919, the Starling was unknown in North Carolina, but the authors made the very obvious prediction that it might be expected to appear at any time. Before the year was over, the prediction was fulfilled when, on December 19, 1919, a Starling was shot from a flock of three at Willard, Pender County, by W. F. Pate. So far as we know, no others were recorded in the State until 1922, when some were seen at Manteo and other places. At Raleigh, they were first noted on April 19, 1923. From this time on their distribution rapidly increased. Today they appear to be present in suitable locations all over the State.

This is the "Bobtailed Blackbird," often seen in flocks about towns and on farmlands. Its pointed wings, short tail, and swift even flight are noticeable characteristics. It eats insects mainly, but it also consumes grain, fruits, and vegetables. The Starling produces many notes and readily imitates the calls of various birds of the neighborhood. It builds its nest chiefly of dried vegetable matter in crevices of buildings or in holes in trees, often driving martins and flickers away and usurping their nesting places. It does not hesitate to destroy the eggs or young of other birds whose nests it desires to appropriate. The eggs range from five to seven and are pale-bluish in color, without spots.

The first successful introduction of Starlings into North America is generally accredited to Eugene Scheiffin, who on March 16, 1890, liberated eighty in Central Park, New York City. From here they have spread throughout much of North America.

During the winter months, Starlings often establish large roosts, frequently in towns and cities. As evening approaches the birds may be seen arriving first singly and then in small, loose flocks, until there develops a steady stream of arrivals, as from their feeding grounds, sometimes twenty or thirty miles away, they continue to pour in until darkness falls. Such great numbers of birds roosting in trees bordering sidewalks become quite a nuisance to people who dwell near-by or who have to pass beneath them.

Many attempts have been made to break up these nightly gatherings; the Government has issued various circulars advising distressed citizens how to proceed in their unpleasant and apparently hopeless task of eliminating the roosting Starlings from the neighborhood.

Family **VIREONIDAE.** Vireos.

Vireos are tree dwelling, insectivorous birds with the bill hooked slightly at the tip. The color of the plumage is mostly greenish-olive above, and white or yellow beneath. Some species suspend their nests from the forks of small branches and hence are often known as "Hangers," or "Swinging-birds."

Technically the family is of interest because the number of the wing primaries varies from nine to ten in the different species, the number being in this group only of specific importance, while apart from this family it splits all our other *Passerine* birds into two series.

More than one hundred species and subspecies of vireos have been described. All are distinctly American, none being found outside the Western Hemisphere. By far the larger portion dwell in the tropical lands of Central and South America, only about a dozen species being found in the United States. In North Carolina seven forms have been recorded, all belonging to a single genus.

Genus **VIREO** Vieillot.

WHITE-EYED VIREO.

Plate 40

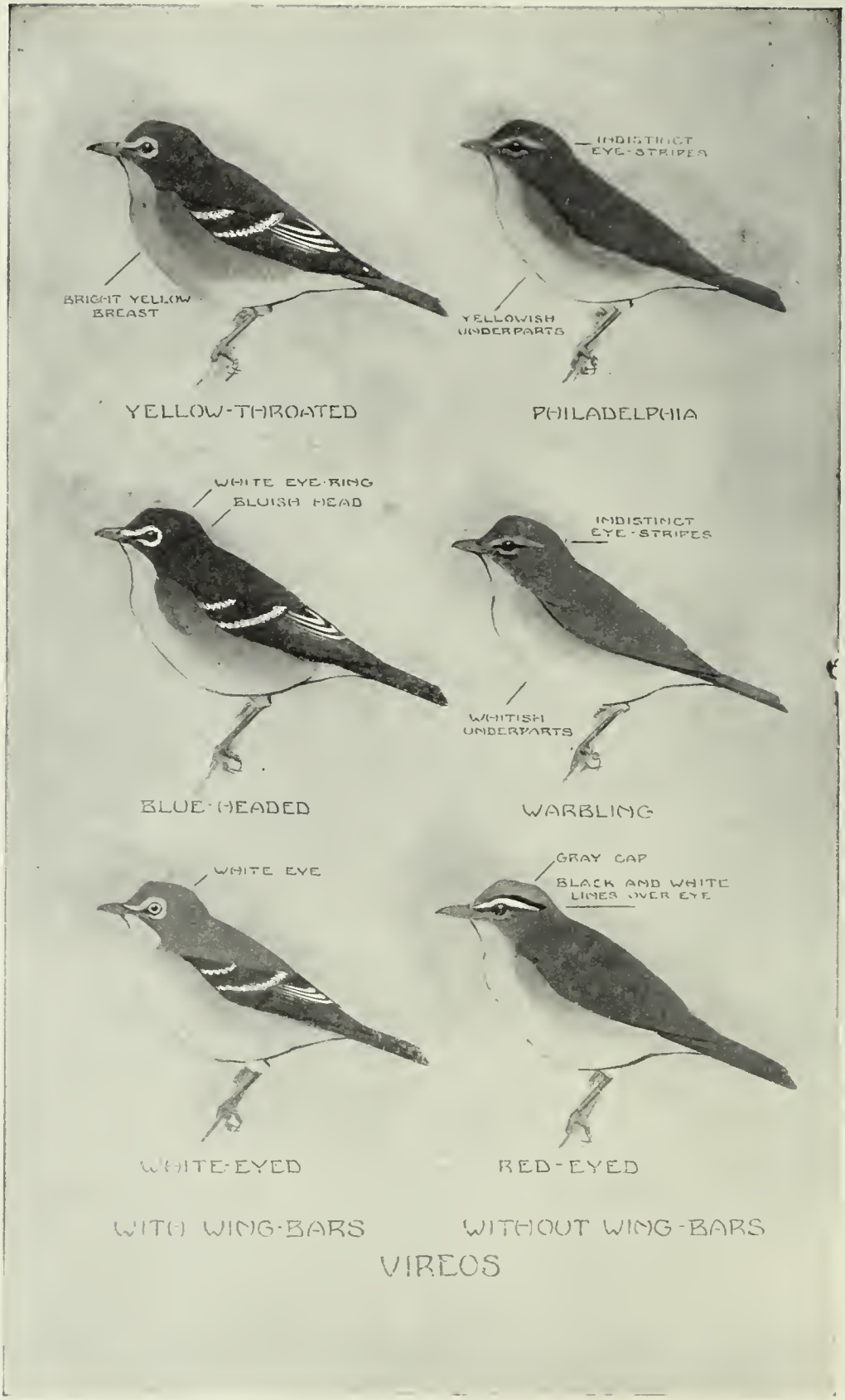
Vireo griseus griseus (Boddaert). [631]

DESCRIPTION. Upperparts olive-green, somewhat tinged with grayish, two yellowish-white wing bars; underparts white; the breast and sides more or less tinged with yellow; lores and eye-ring yellow; iris white. Length 4.50-500; wing 2.35-2.50; spread 7.25-8.18; tail 1.90-2.10.

RANGE. Breeds from Wisconsin and New York to central Texas and central Florida; winters from South Carolina to Honduras.

RANGE IN NORTH CAROLINA. Whole State in summer.

The White-eyed Vireo is a common summer bird throughout North Carolina. Our earliest date for its arrival in spring at Raleigh was March 3 (1890); the latest it has been found here in autumn was October 16 (1906). Unlike our other vireos, this is a bird of the thickets rather than the woods. The nest is an interwoven cup of strips of bark, grass, and plant fibers, usually ornamented with moss. It is suspended from a fork of a bush, generally within ten feet of the ground. The spots on the four eggs are more or less evenly distributed over



Courtesy of Roger Tory Peterson

the entire surface. Size .75 x .55. At Raleigh, eggs have been taken from April 26 until June 27. Reports of eggs found in other parts of the State come within this range of dates.

The White-eyed Vireo is a fussy, inquisitive little bird, very much given to scolding any intruder upon its privacy. The song is a very distinctive feature of the lowgrounds, but it cannot be called particularly melodious. Boys around Raleigh used to say that in singing it said, "Fishing-in-the-creek; put-your-cork-a-little-deeper." Often it imitates the notes of other birds.

☆ Earlier dates are February 1st (Wilmington) and March 3rd (Raleigh). December records are two for Wilmington and one for Mount Olive. ☆

YELLOW-THROATED VIREO.

Plate 40

Vireo flavifrons Vieillot. [628]

DESCRIPTION. Olive-green above; rump ashy; bright yellow below, except belly, which is white; superciliary line and orbital ring yellow; wing bars white. Length 5.35-5.75; wing 2.90-3.15; spread 8.87-9.87; tail 1.85-2.15.

RANGE. Breeds from Manitoba and Quebec to northern Florida; winters from Mexico to Venezuela.

RANGE IN NORTH CAROLINA. Probably whole State in summer.

The Yellow-throated Vireo is essentially a bird of the treetops and is easily overlooked. Its bright yellow throat and breast are its best field marks. Like other birds whose food is highly insectivorous, it is with us only in summer. According to C. S. Brimley, the earliest spring and latest autumn dates for it at Raleigh are April 3 (1888) and September 16 (1891). Its song is loud and musical and is continued virtually during the entire period of the bird's stay. Look for it in mixed woods or in groves of shade trees. Burleigh found it at Asheville, April 10 to October 5.

The nest is similar to that of the Red-eyed Vireo, but is usually placed at a greater height from the ground and often the outside is ornamented with gray lichens. In true vireo fashion, this is suspended from a fork at the end of a limb. The eggs are more heavily marked than those of the other members of the family. We have only a few records of nests in North Carolina. The Brimleys found one at Raleigh, May 28, 1894, and two others were seen here by H. H. Brimley, one in a maple on Hillsboro Street, May 24, 1919 (containing young), the other, about the same time, was in a post oak outside his bedroom window on Ashe Avenue. Nests were found by Armfield at Greensboro, May 1, 1895, and May 3, 1897. We know little of this bird's occurrence on the coast. One was from Fort Macon, October 5, 1938 (Grey).

☆ Earlier arrival dates are March 24th (Wilmington) and March 27th (Statesville). Late dates are October 10th (Asheville) and through the 1946 winter (Wilmington). Additional nesting is recorded from Chapel Hill, Statesville, Charlotte and Beaufort County. ☆

BLUE-HEADED VIREO.

Plate 40

Vireo solitarius solitarius (Wilson). [629]

DESCRIPTION. Top and sides of head bluish-gray; eye-ring and lores white; back olive-green; wings with two white bars; underparts white; the sides more or less yellowish. Length 5.50-6.00; wing 3.00-3.25; spread 9.00-10.12; tail 2.15-2.45.

RANGE. Breeds from Canada to southern Pennsylvania; winters from South Carolina to Nicaragua.

RANGE IN NORTH CAROLINA. A spring and fall transient.

Of the occurrence of this migrant in the Asheville region, Burleigh has reported: "It was only in the late fall that specimens of this northern race were taken here, but it undoubtedly occurs also in the spring, at least in limited numbers. It is apparently in October that the bulk of these birds leave their summer haunts for it was throughout this month that they were consistently recorded. Specimens collected included the following: males October 14 and October 21, 1930, and October 19, October 25 and November 5, 1932; and females October 1 and October 29, 1932."

☆ Winter records are added from Wilmington, Mount Olive, Raleigh, Greensboro, Elkin, Asheville and Fontana. A spring record is March 9th (Raleigh). ☆

MOUNTAIN VIREO.

Vireo solitarius alticola Brewster. [629c]

DESCRIPTION. Similar to the Blue-headed Vireo but somewhat larger, and in typical specimens the back is about as dark as the crown of head. Wing about 3.03-3.30; tail 2.20-2.30.

RANGE. Breeds from Maryland and Tennessee to Georgia. Winters from South Carolina to Florida.

RANGE IN NORTH CAROLINA. Summer resident, breeding in the mountains and eastward at least to Wake County.

The Blue-headed Vireo was considered a distinct species that exhibited no climatic variations, until May 29, 1885, when William Brewster took a male bird at Highlands, Macon County, North Carolina, that was larger than the Blue-headed Vireos farther north and was much darker on the crown and back. He told of this in *The Auk* for January, 1886, contending that here was a representative of a well-marked subspecies that had been overlooked and he named it "Mountain Solitary Vireo." The Nomenclature Committee of the American Ornithologists' Union accepted these findings of Brewster, and the name of "Mountain Vireo" took a definite and permanent place in ornithological literature. Mr. Brewster saw the bird commonly in various regions and said that it "was found exclusively in open oak and chestnut woods."

In Buncombe County it has been known to arrive from March 5 to 25, and has been noted in autumn as late as November 24 (Cairns). It nests chiefly in deciduous trees. Cairns found one in a chestnut tree on Craggy Mountain in Buncombe County, May 27, 1887. Sherman and C. S. Brimley saw a pair

building in a sourwood at Lake Toxaway, May 8, 1908; and Bruner some time later discovered a nest in a chestnut tree at Blowing Rock.

We quote from Burleigh's Asheville notes on the Mountain Vireo: "This was a common breeding bird here, occurring during the summer months in stretches of woods in the valleys and on the mountainsides. It was one of the earliest of the migrants to appear in the spring and among the last to depart in the fall, being noted daily from the latter part of March until the first of November. My earliest date of arrival in the spring is March 17, 1933, my latest date of departure in the fall, November 5, 1932."

Eastward of the mountains nests have been found at Statesville, Iredell County, on June 11 and June 15, 1888 (McLaughlin); at Raleigh nests with eggs were seen April 27, 1891, by C. S. Brimley and on April 20, 1924, by Sherman. At Chapel Hill, Odum records the bird as "a local summer resident in certain pinewoods." L. L. McAllister at Greensboro found a nest April 19, 1941. He sent in photographs of the bird and the nest.

Of the Blue-headed Vireo group, C. S. Brimley states: "Seventy-five specimens have been taken at Raleigh at various times during all the months of the year, except February. Some of these undoubtedly were typical Blue-headed migrants from the north, but those that breed in the hot pinewoods of our central regions appear to be different, and they certainly are not typical Mountain Vireos either in plumage or breeding habits."

We have much yet to learn about the distribution of the subspecies of the Blue-headed Vireo in North Carolina. However, we know that it is a happy, noisy bird as it goes about its daily duties. Chapman says of it: "Like its congeners, but unlike birds in general, it sings at its work."

RED-EYED VIREO.

Plate 40

Vireo olivaceus (Linnaeus). [624]

Description. Olive-green above; white beneath; crown ashy edged on each side with blackish; a white superciliary stripe and beneath this a dark line running from base of bill to and beyond eye; iris red. No wing bars. Length 5.65-6.25; wing 2.90-3.40; spread 9.50-10.50; tail 1.95-2.30.

Range. Southern Canada to central Florida, Alabama, and northern Coahuila; winters in South America.

Range in North Carolina. Whole State in summer.

The Red-eyed Vireo is, with us, a common summer resident, especially where deciduous trees are found. In much of the State it makes its appearance in spring about the middle of April, although somewhat later in the higher mountains. In autumn some remain until the last of October. This is one of the few birds in which a distinct wave of migration has been noted quite aside from the one which brings the breeding birds. During May, C. S. Brimley has often observed these vireos migrating in the lowgrounds fully three weeks after the breeding birds had arrived in the upland woods.

The nest, a deep, cup-shaped structure, is made of bark, grass, and other vegetable substances woven together and lined with finer material. It is suspended by the rim from a slender fork at the end of a drooping limb. We have

found nests in beech, sweetgum, dogwood, persimmon, oak, maple, and birch trees. The eggs are three, occasionally four, pure white in ground color, and sparingly sprinkled with fine, dark, reddish-brown dots, chiefly near larger end. Size .85 x .56. At Raleigh nests with eggs have been recorded from May 19 to June 17. Armfield has found eggs at Greensboro as late as July 3.

The Red-eyed Vireo is a constant and persevering singer, and one of the few birds that sings in the middle of the day; the song period, however, does not often extend beyond the heat of early summer. Its diet is strictly insects, and when hopping about among the branches, it seems to keep a lookout mainly for those forms which may be above its head, as it is continually looking upward. Like all other vireos, it will stop work to scold the moment an intruder comes near its nest. It was noted by Burleigh at Asheville from April 22 to October 12.

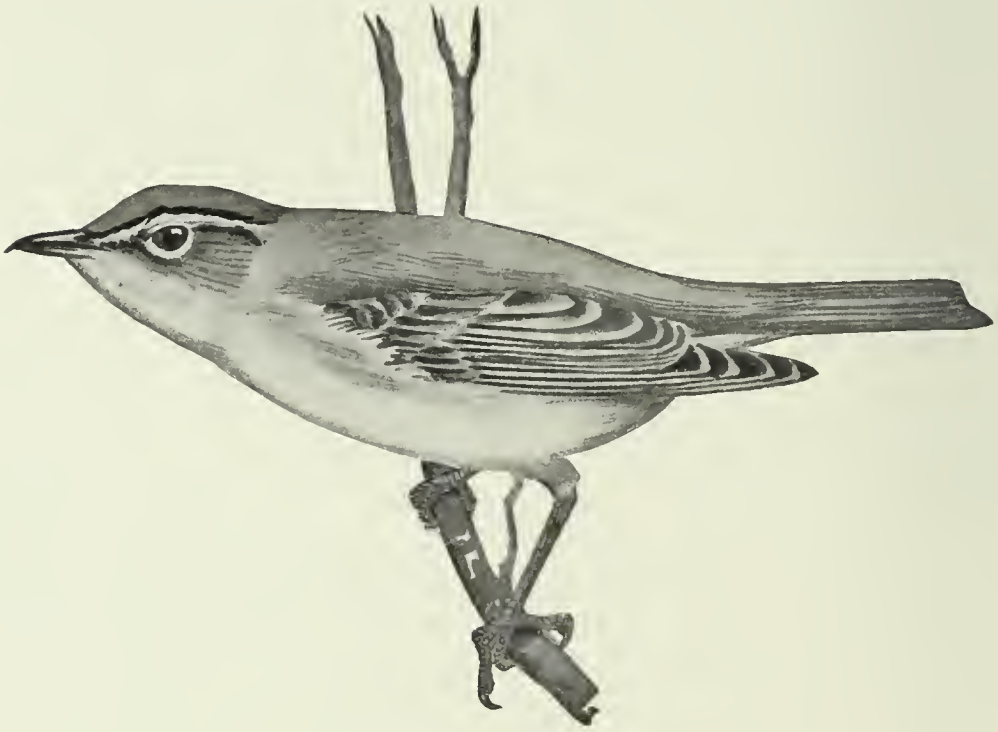


Fig. 90. Red-eyed Vireo.

☆ New arrival dates are March 23rd (Wilmington), March 31st (Lenoir) and April 2nd (Greensboro and Raleigh). ☆

PHILADELPHIA VIREO.

Plate 40

Vireo philadelphicus (Cassin). [626]

DESCRIPTION. Grayish olive-green above, somewhat more grayish on top of head; a whitish superciliary stripe and a dusky stripe below it; underparts very pale sulphur-yellow, deepest on chest; chin and belly white. Length about 4.80; wing about 2.65; tail 2.00.

RANGE. Breeds from Alberta to Maine, also in North Dakota, Michigan, and New England; winters from Yucatan to Panama.

RANGE IN NORTH CAROLINA. A rare migrant.

This, the smallest of the vireos, is even smaller than a House Wren. It is a difficult bird to identify as its song is almost exactly the same as that of the Red-eyed Vireo; its colors are very much like those of the Warbling Vireo; and, furthermore, it is easily mistaken for a warbler. Forbush has written: "It may occur almost anywhere in migration. I have seen it in the spring of the year three feet from the ground in a bush beside a city street, and from thirty to forty feet above ground in the woods."

Our only records of the Philadelphia Vireo in North Carolina are from Buncombe County, one by Cairns in 1891, and four collected by Burleigh on the following dates: September 27 and October 6, 1932; October 2, 1933, and May 16, 1934; and from Edgecombe County where Craighill found it at Rocky Mount, in April, 1937, August 15, 1939, and on April 25, 1941.

☆ Three are reported for Southern Pines, Chapel Hill and Raleigh (all in May). ☆

EASTERN WARBLING VIREO.

Plate 40

Vireo gilvus gilvus (Vieillot). [627]

Description. Very similar to the Red-eyed Vireo, but slightly smaller and the ashy color of the crown is not edged on each side by dusky, and the white eye stripe is not so noticeable. There are no white wing bars. There is a short first primary, an inch or less in length, making ten in all; while in the two preceding species there are only nine, the first nearly as long as the second. Length 5.00-5.50; wing 2.65-2.95; tail 2.10-2.40.

Range. Breeds from Canada to North Carolina and northwestern Texas; winters south of the United States.

Range in North Carolina. Breeds in the mountains, possibly only a migrant elsewhere.

The Warbling Vireo keeps high in the trees. Near Lake Champlain, in New York, Pearson once found its little basket-shaped nest among the uppermost twigs of a sycamore tree forty-two feet from the ground. It is a bird of very quiet colors but in summer constantly proclaims its presence by singing. Arthur Allen says, "Its song ripples up to a marked crescendo;" and he interprets it as: "If I could see it, I would seize it and would squeeze it till it squirts." Ralph Hoffman estimated that "the bird sings more than four thousand songs a day during the breeding season." Indeed it is a "warbling" vireo.

We know of its occurrence in North Carolina chiefly in the mountain regions where Oberholser, in 1905, said it is "not common, breeds in May." Cairns, in 1891, wrote that it was plentiful at Weaverville and nested along the rivers. Minot Davis at Asheville, in 1899, reported its arrival on April 21 and said it was a common bird of local distribution.

Eastward from the mountains, so far as we are aware, it has been positively identified only in the region of Rocky Mount. Here Craighill has found it during the spring or fall migration periods as follows: August 26, 1935; October 5, 12, and 19, 1936; and April 17, 1939.

☆ Added records are for Wilmington (April 3rd, 6th and March 22nd), Raleigh (May 1st) and Greensboro (May 1st). ☆

Family **COMPSOTHLYPIDAE.** Wood Warblers.

This family of birds is found only in the Western Hemisphere. Most of them are confined to the eastern portion of the North American continent during the breeding season. While a few species pass the winter in the United States, as a whole they are highly migratory and journey in autumn to the West Indies or Central and South America. Representatives of several species are usually associated during the spring and autumn. They are all small birds, the Yellow-breasted Chat being the only one which could even be regarded as of medium size, the majority measuring less than six inches in length.

The name "Warbler" has been applied to these American birds because of their general resemblance to the warblers of Europe, which were so named a long time ago on account of their singing powers. Some of our warblers sing prettily, but as a rule their pleasing notes are little more than a short series of simple trills. The males of many species are brightly colored and beautifully marked. Sometimes the sexes are very unlike in coloration, and the variations of plumage due to age and season also are striking.

It may be well to remember that the male and female often differ so much in color that the amateur student in ornithology may be forgiven if he does not even suspect that the two birds on the bush before him are of the same species. Again the plumage of many a warbler in spring is often greatly different from that with which it is dressed in the autumn; sometimes well-grown young birds look different from their parents.

Warblers subsist almost entirely upon a diet of insects which they pick from the leaves or bark of bushes and trees or sometimes capture by short flights. They are very attractive birds to have about the home, and all are so valuable as insect destroyers that they are protected by Federal and State laws in the United States and Canada.

The technical points which distinguish them are: The possession of nine developed primaries; a slender bill not decidedly hooked at the tip; inner secondaries not lengthened; hind toe neither long nor straight. Sixteen genera of the family *Compsothlypidae* are found in North America. These embrace some eighty-five species and subspecies. Of the foregoing we have been able to list for North Carolina thirteen genera including forty-six species and subspecies.

Genus **MNIOTILTA** Vieillot.

BLACK AND WHITE WARBLER.

Plate 43, Fig. 12

Mniotilta varia (Linnaeus). [636]

DESCRIPTION. Black and white streaked above and below; wing bars and spots on inner webs of two outer tail-feathers white. Female: duller and more grayish with less black streaking below. Length 4.85-5.46; wing 2.46-2.90; spread 7.87-8.75; tail 1.75-2.15.

RANGE. Breeds from central and eastern Canada to eastern Texas and northern Georgia. Winters from Florida to northern South America.

RANGE IN NORTH CAROLINA. Summer resident; breeds in central and western parts of the State. Absent in winter.

The Black and White Warbler, formerly called the "Black and White Creeper" on account of its creeping movements, is a common summer resident in most portions of our State. The extreme dates noted of its occurrence in the Raleigh region are March 19 and October 13, although there exists one record for November 10 (1885). Its favorite haunts are mixed woods, so common in the rolling countryside of central Carolina. The nest, made of soft bark, leaves, and grasses and lined with hair or rootlets, is built on the ground. Three to five eggs are laid. These are white, speckled with hazel or cinnamon rufous, and often also with lilac or lavender gray.

On a hillside near Raleigh, C. S. Brimley found a nest May 12, 1893. It was tucked under a mat of pine straw at the base of a sapling. He also saw a nest at Andrews, Macon County, in June, 1908, which was on almost level ground at the end of a prostrate log. Pearson discovered one under an exposed root on a wooded hillside, in May, 1896, at Guilford College. Brown watched a pair feeding young at Davidson College, May 26, 1929, and a week later came upon a nest with young near Greensboro. Mr. and Mrs. Edwin Clarkson found a nest at Charlotte lined in part with fine copper wire.

In some of its movements, this species behaves more like a nuthatch than a warbler, for in its search for food, it is continually running about the trunks or along the larger limbs of trees.

☆ An early date is for Weaverville (March 3rd). Winter records are from Greensboro (November and January), Asheville (November and December) and Wilmington (December 28th). A more eastern nesting record is Red Springs (May 6, 1935). ☆

Genus **PROTONOTARIA** Baird.

PROTHONOTARY WARBLER.

Plates 41 and 42, Fig. 13.

Protonotaria citrea (Boddaert). [637]

Description. Head, neck, and underparts rich orange-yellow, except under tail-coverts, which are white; back olive-green; wings and tail bluish-gray. Female: similar but top of head olive-green, like back. Length 5.35-5.75; wing 2.60-3.00; spread 8.65-9.15; tail 1.65-2.00.

Range. Breeds in Mississippi Valley and eastern States from Maryland to northern Florida. Winters from southern Mexico to Colombia, South America.

Range in North Carolina. Eastern half of State in summer.

This warbler, with its rich orange plumage, is easily one of a dozen of our most strikingly colored birds. Fortunately for the nature lover who invades the eastern swamps or floats along our slow-moving streams, it is often in evidence, as it seeks its food among the reeds or bushes or among overhanging limbs.

It has a custom practiced by none of our other warblers in that it selects a hole as the place to build its nest of fine grass, moss, and perhaps fragments of dead leaves. Pearson found one at Cape Hatteras, May 12, 1898, that was hidden in the cavity of a living holly tree twelve feet from the ground. It contained four slightly incubated eggs. Another nest containing young was discovered by Philipp and Bowdish in a rotten cypress stump at Great Lake, Craven

County, June 20, 1909. Between 1915 and 1935, Kelly examined several with eggs in Cumberland and Sampson Counties, all were seen between May 15 and 21, and H. H. Brimley saw nests near White Lake, Bladen County, one being in the slightly hollowed top of a broken-off sapling.

Just how far inland these birds may wander, we do not know; however, there are records of specimens being seen at Greensboro, April 13, 1929 (Brown), and at Thomasville, Davidson County, April 23, 1924 (Katherine H. Stewart).

☆ Early dates are for Southport (March 23rd), Wilmington (April 6th) and Fayetteville (April 10th). Fall dates are for Raleigh (August 26th) and Rocky Mount (August 22nd). Inland nesting records are for Raleigh, Zebulon, and Chapel Hill. ☆

Genus **LIMNOTHLYPIS** Stone.

SWAINSON'S WARBLER.

Plate 42, Fig. 18

Limnothlypis swainsonii (Audubon). [638]

DESCRIPTION. Crown cinnamon-brown; a whitish line over eye; rest of upperparts, including wings and tail, olive-grayish brown; underparts yellowish-white, grayer on sides. Length 5.15-6.50; wing 2.68-2.88; tail 1.84-2.00.

RANGE. From southern Virginia south, and in the Mississippi Valley country from southern Indiana southward.

RANGE IN NORTH CAROLINA. Largely the low coastal region.

This is a plain-colored warbler, whose song bears a certain resemblance to that of the Louisiana Water-Thrush. It has long been supposed that this bird is confined to the Lower Austral Zone. Our first record of its appearance in North Carolina was made by H. H. Brimley, who secured a specimen on April 13, 1885, in Craven County. Individuals were heard singing between Little Lake and Lake Ellis in May, 1907 and 1908, by C. S. Brimley. Bowdish and Philipp, June 18, 1909, watched a parent feeding its young one in the woods near Great Lake. These four observations were all made within a radius of a very few miles. J. E. Gould wrote us that he found a nest with four slightly incubated eggs near Edenton, Chowan County, May 10, 1906; and he saw specimens of this warbler in the same region in 1907. Like those found in Craven County, these were in the low coastal country.

During the past few years, the presence of these little-known birds in North Carolina has again come to the attention of ornithologists as recorded in *The Auk*, 1935, pp. 458-459. Murray, on May 2, 1935, found a newly made nest of the Swainson's Warbler in Little Raft Swamp at Red Springs, Robeson County. Five days later it contained two freshly laid eggs. With the aid of a flashlight, he studied the bird at night on the nest at arms length. Murray wrote: "The nest was located two feet from the ground on the top of a mass of honeysuckle vines growing over a small bush, and was the usual bulky mass of leaves, lined with fine rootlets. The eggs were creamy-white with no markings." In the same swamp he found another unoccupied nest and in all observed four birds in the region. Red Springs, he tells us, is ninety miles inland from the coast. A male was collected for the Museum in this swamp, May 15, 1939.

YELLOW-THROATED WARBLER. *Upper.*
PROTHONOTARY WARBLER. *Lower.*

Another discovery was even more surprising because of its greater distance from the eastern swampy regions to which one would expect the bird to be confined. E. A. Williams, of the Charleston (S. C.) Museum, on May 8 and 9, 1934, found a Swainson's Warbler near Tryon, Polk County. Returning in May, 1935, he saw two birds and observed them from the 9th to 14th of the month. They were occupying open woods on a ridge about 100 yards from the nearest water, which was only a small spring. These observations were made in the mountains fully 250 miles from the nearest point on the North Carolina coast. Near Asheville, Burleigh collected three specimens, the dates being September 17, 1930, August 31, 1931, and September 14, 1932.

☆ Western records added are for Blowing Rock (June 11th), Ridgecrest (August 10th) and Highlands (May 11th and July 3rd). ☆

Genus **HELMITHEROS** Rafinesque.

WORM-EATING WARBLER.

Plate 42, Fig. 17

Helmitheros vermivorus (Gmelin). [639]

Description. Head, neck, and underparts buff; the head with two black stripes on the crown, and one on each cheek; throat and belly white; breast creamy-buff; back, wings, and tail olive-green, unmarked. Length 5.00-5.75; wing 2.65-2.90; spread 8:35-9.13; tail 1.90-2.20.

Range. Breeds from Illinois and Connecticut to northern Georgia; wintering in West Indies and Central America.

Range in North Carolina. Summer visitor in the mountains, mostly a transient elsewhere.

This is one of the rarer warblers in North Carolina, and in most of the State may be expected to appear only during the periods of migration. It may easily be recognized by the four distinct black lines running the length of the head. Between them lie three light olive-brownish stripes. Note, this warbler usually walks instead of hopping. Frequently it moves along a tree bole like a Black and White Warbler. Being a warbler, it eats insects and naturally spends most of the daylight hours in foraging for these small creatures.

We have but little knowledge of where and when it builds its nest in this State. There has come down from many years ago a general statement that it has been found as a rare breeder in Bertie and Buncombe Counties. Bruner wrote thirty-three years ago that in June, 1909, it was common in Alexander County; Odum in the *Birds of Chapel Hill* (1935) says: "Scarce transient, April 27-May 5 and August 31-September 5; one summer record, June 27, 1931. A low ranging bird frequenting thickets." Brown reported one at Pilot Mountain, Surry County, June 26, 1924, and Hudson says it appeared at Sunburst, Haywood County, June 14, 1930. These, with some observations made of it in Caldwell, Beaufort, and Wake Counties, about cover our knowledge of the distribution of the Worm-eating Warbler in North Carolina. Its white, brown-spotted eggs are laid in a nest hidden on the ground in mixed woods. Its song is reported to be weak and easily overlooked.

Burleigh at Bent Creek, Buncombe County, saw parent birds carrying food to their young, June 1, 1930.

☆ Added spring dates are for Bat Cave (April 16th), and April 26th (Wilmington and Raleigh). Added fall dates are for Swansboro and Greensboro (August 19th), Racky Maunt (August 29th), Maunt Olive (August 28th), Raleigh (November 3rd) and Andrews (October 11th). Additional nesting records are for Bertie, Iredell and Orange counties. ☆

Genus **VERMIVORA** Swainson.

GOLDEN-WINGED WARBLER.

Plate 42, Fig. 11

Vermivora chrysoptera (Linnaeus). [642]

DESCRIPTION. Ashy-gray above; forehead, crown, and wing patch bright yellow; throat, loral stripe, and ear-coverts black in adult males, deep gray or dusky-olive in females; cheeks, above and below the black area and underparts, white. Length 5.10; wing 2.45; spread 7.35; tail 1.95.

RANGE. Eastern United States in summer, mainly west of Alleghanies except north of latitude 40. Winters in Mexico and Central America.

RANGE IN NORTH CAROLINA. Rare transient in eastern part of State from Rocky Mount west; scarce summer visitor in at least the southern half of the mountains.

The male Golden-Winged Warbler may be known by its black throat, black stripe below the eye, yellow crown, and *yellow wing patch.* The female is duller and the black areas of the male are replaced with grayish feathers. It breeds in the mountains "at from 2,000 to 4,000 feet elevation" (Brewster), but elsewhere in the State, thus far, it is known only as a bird of passage in the spring and autumn. Cairns made the rather indefinite claim that in Buncombe County this bird breeds in June. Miss M. A. Boggs wrote that she examined a nest containing four young birds near Waynesville in "the summer of 1906." The nest was on bare ground in a pasture at 3,000 feet elevation. Burleigh says in Buncombe County it does not breed below approximately 3,500 feet elevation.

We have records of this warbler being seen in May in the counties of Buncombe, Cherokee, Franklin, Guilford, Jackson, Macon, Orange, Rowan, Transylvania, and Wake. Once Cairns reported it in Buncombe as early as April 9 (1892). It has been noted at Raleigh as late in autumn as August 30 (1893).

☆ The 31 additional records of this bird confirm the above. Late fall records are for Highlands (October 7th) and Piney Creek (October 3rd). One breeding record is for Highlands. ☆

BLUE-WINGED WARBLER.

Plate 42, Fig. 9

Vermivora pinus (Linnaeus). [641]

DESCRIPTION. Crown and entire underparts bright yellow; a black line through the eye; back and rump bright olive-green; wings and tail bluish-gray, the former with two white or yellowish-white wing bars, the latter with white blotches on the inner webs of four outer tail-feathers. Female: similar but duller, and the yellow on top of head confined to forehead. Length 4.80; wing 2.40; spread 7.37-7.55; tail 1.80.

RANGE. Eastern United States south to northern Georgia; winters from southern Mexico to northern South America.

RANGE IN NORTH CAROLINA. Rare transient, but said to have bred in Buncombe County.

The Blue-winged Warbler appears to be partial to upland woods, in or near which it is supposed to build its nest on the ground or only a few inches above it. The eggs, four or five in number, are white, speckled faintly and sparingly with brown. Size .65 x .51.

We have very few records of this species in the State, and outside of Raleigh it has been recorded only from six other regions. Cairns called it an uncommon summer visitor in Buncombe County, adding that it bred in that region. In Orange County, Odum recorded it May 2, 3, and September 3, 7, and 20. (*Birds of Chapel Hill*, 1935.) Craighill reported one at Rocky Mount, August 24, 1936; and Sprunt at Montreat, September 10, 1929. At Raleigh eleven records have been made in April, May, August, and September between 1887 and 1941 by Bostian, Bruner, and the Brimleys. All Raleigh specimens were found in woods of mixed pine and oak. Wetmore has a specimen taken at Reidsville, September 26, 1939.

☆ Our 18 added records of this bird confirm the above. Added locality records are for Mount Olive (May), Chapel Hill (May), Henderson (April and May), Greensboro (May and September) and Mount Mitchell (June and August). ☆

Hybridization among small birds is not common, but hybrids of the Blue-winged Warbler and the Golden-winged Warbler have appeared with frequency. These fall into two fairly well-marked groups, each for a time being regarded a distinct species. They were given the names Brewster's Warbler and Lawrence's Warbler. This recognition has now been discontinued. The so-called Brewster's Warbler may be described as closely resembling the Golden-winged (see Plate 42, Fig. 10), the chief difference being the absence of black on the cheek and throat and there is usually some yellow on the forebreast. Three specimens have been noted in North Carolina. One of these was taken by H. H. Brimley near Raleigh, September 6, 1888, and its identity was determined by William Brewster; another was recorded at Chapel Hill by Odum, August 25, 1932; and still another was found by William B. McIlwaine, Jr., at Montreat on August 28, 1936.

☆ One record is added for Greensboro (May 1st). ☆

The other hybrid, which was called Lawrence's Warbler (Plate 42, Fig. 12), is colored above and below like the Blue-winged but possesses the black throat and cheek patches of the Golden-wing. A specimen was found by Craighill and Hugh Battle, Jr., at Rocky Mount on June 26, 1935. The bird was examined closely while feeding about the base of a cluster of flowers of the trumpet vine. Craighill saw a second specimen in a neighboring locality the next day. Earl M. Hodel has reported seeing two of these birds at Ronda, Wilkes County, May 8, 1938. (*The Chat*, July-August, 1938.)

☆ One record is added for Raleigh (May 1st). ☆

WARBLERS

1. KENTUCKY WARBLER, MALE
2. MOURNING WARBLER, a. MALE; b. FEMALE
3. CONNECTICUT WARBLER, a. MALE; b. FEMALE
4. NASHVILLE WARBLER
5. NORTHERN YELLOW-THROAT, a. MALE; b. FEMALE
6. HOODED WARBLER, a. MALE; b. FEMALE
7. WILSON'S WARBLER, a. MALE; b. FEMALE
8. BACHMAN'S WARBLER, a. MALE; b. FEMALE
9. BLUE-WINGED WARBLER, Male
10. BREWSTER'S WARBLER
11. GOLDEN-WINGED WARBLER, MALE
12. LAWRENCE'S WARBLER
13. PROTHONOTARY WARBLER, a. MALE; b. FEMALE
14. YELLOW-BREASTED CHAT
15. YELLOW WARBLER, a MALE; b. FEMALE
16. ORANGE-CROWNED WARBLER
17. WORM-EATING WARBLER
18. SWAINSON'S WARBLER
19. TENNESSEE WARBLER, MALE
20. PARULA WARBLER, a. MALE; b. FEMALE
21. BLACK-THROATED BLUE WARBLER, a. MALE; b. FEMALE
22. CERULEAN WARBLER, a. MALE; b. FEMALE

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3a
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22a
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WARBLERS I.

BACHMAN'S WARBLER.

Plate 42, Fig. 8

Vermivora bachmanii (Audubon). [640]

Description. Uniform olive-green; forehead and underparts yellow; male with a black band across front of crown and a large black patch on throat and breast which is entirely surrounded by yellow. Female: similar but with no black on crown and that on breast replaced by dusky-olive. Length 4.85; wing 2.45; spread 7.80; tail 1.83.

Range. Breeds in Mississippi Valley, Georgia, South Carolina, and perhaps eastern North Carolina. Winters in Cuba.

Range in North Carolina. Only known from two specimens taken at Raleigh.

The Bachman's Warbler was first described and named by J. J. Audubon in his *Ornithological Biographies,* published in 1834. The specimens he handled were taken near Charleston, South Carolina. Only two examples of this rare and little-known species have been found in North Carolina. These were both full-plumaged males taken by C. S. Brimley at Raleigh, one on April 27, the other May 22, 1891. They were in song at the time.

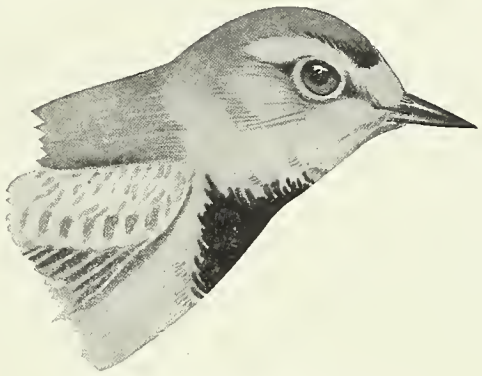

Fig. 91. Bachman's Warbler.

The first nest of the Bachman's Warbler ever known was found by Otto Widmann (see *The Auk,* July, 1897) in Dunklin County, Missouri, on May 17, 1897. It was two feet from the ground, in a blackberry vine growing in a swamp, and was composed of leaves and grass blades, lined with black rootlets. It contained white, unmarked eggs that measured .63 and .64 in length by .48 and .49 in width. Later the species was discovered nesting near Charleston, S. C., by Wayne, and it doubtless breeds more or less commonly all through the Lower Austral Zone of the southeastern States. It is a low-ground loving species, and should be looked for in our eastern swamplands.

TENNESSEE WARBLER.

Plate 42, Fig. 19

Vermivora peregrina (Wilson). [647]

Description. Olive-green above, head more or less ashy and without crown patch; underparts white or slightly yellowish. Length 4.65-4.85; wing 2.45-2.65; spread 7.37-7.87; tail 1.65-1.75.

Range. Breeds, Alaska to New York; winters from Mexico to Venezuela.

Range in North Carolina. Transient only, mainly in the fall.

The Tennessee Warbler has been seen in autumn in Wake County only four times. The dates ranged from September 10 to October 15, but near Asheville, Burleigh found it "a plentiful migrant" in small, restless flocks. His extreme dates of occurrence were August 29 to October 29. At Chapel Hill one was taken on May 3, 1932, by Edmund Taylor; another was seen by J. M. Valentine on May 2, 1932. These were the first spring records for the bird in the State, it having previously been believed that this species migrates northward only through the Mississippi Valley. At Reidsville, specimens were collected September 26, 1939 (Wetmore).

☆ Of the 10 added records 4 are spring dates for Greensboro (May 5th), Winston-Salem (May 3rd), Tryon (May 10th) and Chapel Hill (May 3rd), and there are 6 more October records. ☆

ORANGE-CROWNED WARBLER.

Plate 42, Fig. 16

Vermivora celata celata (Say). [646]

DESCRIPTION. Olive-green, never ashy on head, crown patch orange-brown, more or less concealed; underparts greenish-yellow. Length 5.00; wing 2.55; tail 1.95.

RANGE. Breeds in western Canada and Alaska; winters from North Carolina (rarely) southward to Florida and the Gulf States.

RANGE IN NORTH CAROLINA. An uncommon migrant and a rare winter visitor from the far Northwest.

Two of these warblers were taken by Cairns near Weaverville, a male on October 18, 1893, and a female, January 15, 1894. This information was furnished us by Brewster, in whose collection the specimens were preserved. One was collected by Ludlow Griscom at Monkey Island, Currituck County, January 3, 1915. The specimen is in the American Museum of Natural History, New York City. Griscom writes that another was "seen very satisfactorily by J. M. Johnson and himself at the same island, December 31, 1916."

To these we can now add the following notes by Burleigh from the Asheville region: "While decidedly scarce in the spring the Orange-crowned Warbler proved to be a fairly common migrant for a month each fall, one or two being seen almost daily from the first week in October until early in November. This is rather at variance with the accepted supposition that this species is an extremely scarce migrant throughout the State, but I rather suspect that being quiet and more or less inconspicuous it has been generally overlooked. My few records for the spring months are birds seen April 23, April 26, and April 28, 1930, and May 10, 1934, while in the fall my extreme dates of occurrence are October 5 (1933) and November 3 (1933). It has been noted but once in the winter, one bird, a male, being seen at Swannanoa on December 29, 1931."

☆ Our 14 added records, confirming the above, are for Lake Mattamuskeet (December), Wilmington (December), Charlotte (October), Elkin (February), Tryon (April), Rocky Mount (February) and Chapel Hill (December). ☆

NASHVILLE WARBLER.

Plate 42, Fig. 4

Vermivora ruficapilla ruficapilla (Wilson). [645]

Description. Olive-green, ashy on head and neck; the color contrasting with that of the back; crown patch bright chestnut, more or less concealed; underparts bright yellow; lores and orbital ring pale. Female: duller with crown patch obscure. Length 4.77; wing 2.35; tail 1.82.

Range. Breeds from mountains of Pennsylvania northward to Cape Breton Island. Winters in southern Mexico and Central America.

Range in North Carolina. Known chiefly as an autumn migrant.

Near Nashville, Tennessee, some one hundred and thirty years ago, Alexander Wilson, the author of the first book on the birds of North America and often called the "Father of American Ornithology," took three specimens of a hitherto unknown warbler, which ever since has borne the name of the city at which he found them. Of its call notes, Wilson wrote: "They very much resembled the breaking of small dry twigs, or the striking of small pebbles of different sizes smartly against each other for six or seven times, and loud enough to be heard at a distance of thirty or forty yards." This bird also has a very pretty song which Wilson probably did not hear.

It is a rare visitor that occasionally hurries through the State on trips between its breeding grounds in the north country and its winter range in the tropics. It migrates across the Gulf of Mexico. Cairns regarded it as a "rare transient" in Buncombe County. The first positive record of a date of its occurrence in the State was that made by E. E. Brown, who found one at Greensboro, April 27, 1929. Here our information ended on the subject until Burleigh's studies in the Asheville region became available. He states that he found it "not uncommon about Asheville in the fall."

Burleigh adds: "I never succeeded in recording it in the spring, but from early September until the middle of October it was possible to see an occasional bird feeding in underbrush bordering the open fields and pastures in the valleys. . . . My earliest date of arrival is that of a female seen in the open Mills River Valley, September 9, 1932, my latest date of departure a male seen in the Mills River Valley, October 17, 1932." More recently Tom Odum saw one at Chapel Hill, April 27; Craighill found one at Rocky Mount, May 12 (1941).

☆ Records are added for Mount Olive (May 10th), Rocky Mount (March 25th), Roanoke Rapids (October 8th), Greensboro May 4th), and Charlotte (October). ☆

Genus **PARULA** Bonaparte.

NORTHERN PARULA WARBLER.

Plate 42, Fig. 20

Parula americana pusilla (Wilson). [648a]

Description. Male: clear ashy-blue; back with a large golden-green patch; underparts yellow except belly which is white; a blackish or rufous band across breast; wing bars white. Female: smaller and duller; band on breast sometimes absent. Fall birds with the upper

parts mainly olive-green and the brown bar across breast almost, or entirely, nonexistent. Length 4.25-4.85; wing 2.15-2.50; spread 6.87-7.75; tail 1.50-1.85.

RANGE. Breeds from Ontario to Maryland. Winters in West Indies, and from southern Mexico to Nicaragua.

RANGE IN NORTH CAROLINA. Probably a common transient during the spring and fall migrations.

This form has been collected at Raleigh in the spring by C. S. Brimley. The specimen was definitely identified by its pronounced dark markings on the breast. Wetmore has an immature female taken on Hogan Creek seven miles northeast of Reidsville, September 18, 1939, and a male secured at Engelhard, October 16 of the same year. Burleigh took one at Asheville, October 9, 1931, and another at Swannanoa, September 28, 1933.

☆ Added is an early date (March 26th) for Washington and a late date (October 23rd) for Rocky Mount. ☆

SOUTHERN PARULA WARBLER.

Plate 42, Fig. 20

Parula americana americana (Linnaeus). [648]

DESCRIPTION. Similar to preceding; the markings on the breast lighter and less extensive, the bill slightly larger, the wing slightly shorter.

RANGE. Breeds from District of Columbia to Florida; winters in Florida and the Bahamas.

RANGE IN NORTH CAROLINA. Common summer resident.

This dainty little warbler is a summer resident throughout the State. At Cape Hatteras, E. L. Green, Jr., found it in 1936 as early as March 11, and it has been seen in Buncombe County as late as October 5 (Cairns), and at Durham on October 23 (Seeman).

The Southern Parula Warbler, formerly called the "Blue Yellow-backed Warbler," produces a song which Chapman calls a "quaint, drowsy, little gurgling sizzle, *chip-er, chip-er, chip-er, chee-ee-ee-ee.*" Hunting its nest with a field glass is a harmless and interesting pastime. As is usually the case with most small birds, the best way to find a nest is to watch the parents when they are carrying nesting material or are engaged in taking food to their young. It is frequently found in a cluster of the hanging gray lichen (*Usnea*) where it has been made simply by the process of weaving the fibers of the plant together and lining the little, purse-shaped structure with dry vegetable matter brought from the outside.

The entrance is on the side, and the nests are often in trees standing in or near water, as it is in such a situation that the *Usnea* generally is found growing. Occasionally the nest is placed in hanging "Spanish moss" (*Tillandsia usneoides*), as was the case of one found under construction on the edge of Great Lake in Craven County by H. H. Brimley in late May, 1908, and of another containing young seen at Lake Ellis by Pearson early in June, 1903.

A nest was taken by McLaughlin in Iredell County on May 11, 1887; and Cairns reported the species breeding in Buncombe County in May and June, the nests averaging about twenty-five feet from the ground. The eggs, three to five

in number, are pure white and are speckled around the larger end with reddish-brown and lilac. Size .65 x .48.

In summer this bird is a familiar feature of our damp lowland woods. In August and September, Parula Warblers may be seen migrating in great numbers in upland woods. Many of these probably belong to the northern subspecies and are en route to the far south. Even with strong field glasses, it is not easy to determine which variety of the Parula Warbler one may have under observation, and the females are generally indistinguishable, even if held in the hand.

Genus **DENDROICA** Gray.

This genus is a large one, including as it does some thirty-five different species and subspecies known to inhabit North America, at least during the warmer months. In North Carolina there has been recorded no less than twenty of these birds, all typically woodland in their habitat.

Some of them are rare, others are among the most abundant of our arboreal species. With some the plumage is plain, with others it is strikingly marked with brilliant colors. In all cases these birds are highly insectivorous and perform a service of incalculable value in destroying forms injurious to man's agricultural, horticultural, and forestry interests.

EASTERN YELLOW WARBLER.

Plate 42, Fig. 15

Dendroica aestiva aestiva (Gmelin). [652]

Description. Bright yellowish olive-green above; bright yellow, streaked with rufous beneath, inner webs of tail-feathers yellow; wing quills edged with yellow. Length 4.50-5.25; wing 2.35-2.65; spread 7.31-8.00; tail 1.80-2.10.

Range. Breeds from the northern tree limit to New Mexico and northern Georgia; winters from Yucatan to Brazil.

Range in North Carolina. Summer visitor in central and mountain districts.

The Eastern Yellow Warbler, sometimes known as "Summer Yellow-bird," is a common summer visitor, at least from Raleigh westward to the mountains, where it breeds up to 3,500 feet elevation. Eastward it has been heard singing in May in Currituck and Hyde Counties. At Raleigh the earliest arrival, so far as noted, was April 9, and although seldom seen after July, it has been found here on September 20 (1893). In spring there is a distinct migration of birds that nest farther north. These pass through during the first half of May, and curiously enough are not found in the same situations as those that breed here. Thus, while the summer residents appear about mid-April in upland groves and in the shade trees along our village streets, the migrants only appear in the lowlands and then not until two or three weeks after the residents arrive.

The species seems to breed entirely in orchards, shade trees, and upland groves, apparently nesting rarely in so-called natural forest conditions. The nest as a rule is built in a small tree, at a height of from seven to twelve feet, and is a snug, compact structure, into the composition of which cotton often enters. Frequently it is lined with horsehair. The eggs are laid in May or June, and are usually five in number, of a greenish-white ground color, spotted around the

larger end with brown, black, and lilac-gray. Size .65 x .50. Pearson found these familiar warblers nesting commonly in climbing rose-bushes in Guilford County.

☆ Early spring dates added are for Pittsboro (April 4th) and Windsor (April 7th). A winter record is for Asheville (December 29th). ☆

MAGNOLIA WARBLER.

Plate 43, Fig. 7

Dendroica magnolia (Wilson). [657]

DESCRIPTION. Back black with olive edgings to the feathers; rump yellow; head clear ash; underparts rich yellow with black streaks; under tail-coverts white. Female: duller. Fall birds are mostly plain olive-green above and yellow below, recognizable by their having white spots at the middle of all but the central pair of tail-feathers. Length 4.75-5.15; wing 2.15-2.50; spread 7.12-7.75; tail 1.90-2.15.

RANGE. Breeds from Canada to the mountains of Maryland; winters from southern Mexico to Panama.

RANGE IN NORTH CAROLINA. Transient in most of the State; mentioned as breeding on some of the higher mountains.

The male Magnolia Warbler is a strikingly handsome bird with its orange-red throat, orange and black head, dotted sides, and black upperparts with white markings. It is seen in North Carolina in migrations and may be found in almost any region, either damp or dry, and in almost any garden, lawn, or woodland growth. At Raleigh it has been seen between May 9 and 18, and it is not so common at that season as it is in autumn, when it occurs between September 11 and October 20. In the mountain regions it has been found somewhat more commonly in the spring.

The earliest spring arrival noted in the State was at Andrews, Cherokee County, April 30, 1905. Our latest fall observation thus far made of this bird was at Asheville, November 1, 1932 (Burleigh). Cairns says that in Buncombe County the young are found in July. Minot Davis, in a migration schedule from Asheville, for 1899, states that a nest and eggs had been taken by Cairns and were then in the collection of Samuel B. Ladd, of West Chester, Pennsylvania. When flitting about, this bird frequently spreads the tail and exhibits the conspicuous white bar which crosses it, but which is hidden by the unmarked middle pair of feathers when the tail is closed.

The nests usually are built on horizontal twigs of fir or spruce trees at a height of from four to six feet, but sometimes very much higher; the situations chosen are often along roads or other openings in the forest. The nest is loosely constructed of fine twigs, coarse grasses, and weed stems, lined with fine black roots. The eggs are most frequently creamy-white in color, spotted and blotched with various shades of brown, the markings often forming a wreath around the larger end. Size .63 x .48.

☆ Early spring dates are for Raleigh (April 15th), Waynesville (April 14th), Tryon (April 23rd) and Greensboro (April 26th). An eastern record is for Cape Hatteras (August 28th to September 4th). ☆

CAPE MAY WARBLER.

Plate 43, Fig. 10

Dendroica tigrina (Gmelin). [650]

Description. Olivaceous above with black streaks; rump and sides of neck bright yellow; underparts yellow much streaked with chains of black dashes; crown largely black; ear-coverts orange-brown; a white patch on wing. Female: duller with no black or orange-brown on head. Fall birds: still duller, the rump often simply a little yellower than rest of back. Length 4.85-5.25; wing 2.40-2.65; spread 7.75-8.37; tail 1.63-1.95.

Range. Breeds from Ontario and Nova Scotia to New England; winters in the Bahamas and West Indies.

Range in North Carolina. Transient, at least from Raleigh westward.

The Cape May Warbler, which is one of the most beautiful of all this family of exquisite birds, pays us brief visits on its annual migration journeys. Although most of the Cape Mays returning from the West Indies are supposed to pass up the Mississippi River Valley, our records reveal more occurrences here in April and May than during their southern movement in September and October. Our earliest spring record was made by the Brimleys at Raleigh on April 7 (1902); also our latest autumn record was of a bird seen near this city November 1 (1911). Numerous reports have been made of the Cape May appearing at Asheville, Chapel Hill, Greensboro, Montreat, Salisbury, Waynesville, and elsewhere.

There have been serious complaints from Pennsylvania and Virginia because of this bird's fondness for grapes. Frank L. Burns, of Berwyn, Pennsylvania, writing in *The Auk* for April, 1915, while recounting the damage done by these birds in his neighborhood, said: "So for as I am able to learn all unbagged grapes were ruined; the loss must have been many tons, worth several hundred dollars."

While Franklin Sherman was State Entomologist at Raleigh, he received a dead Cape May Warbler from Cleelum, near Asheville, accompanied with the following letter, dated September 25, 1911. It was written by E. V. Harbeck:

"I had a fine lot of grapes, but the birds have destroyed the most of them before we could gather them. The birds destroyed at least $75 worth for me, and messed them up so badly they were not worth gathering. It is a small bird. . . . It has a beak like a needle. It does not eat the grapes, but simply pricks holes in them and lets them ferment for the bees to get drunk on next day.

"I have seen many berries with two holes punched into them about 1-16 inch apart as though it had not even closed its beak in pricking them. Could it suck the juice of the grape without closing its beak? Please tell me how to stop these birds next season. I have turned things over to them this year. There are thousands of them, evidently migrating, but they will not bunch so that one can shoot them, and they will not scare off any more than bees. . . . I will try to get a few and send one with this letter."

☆ New Eastern fall records are from Wilmington and Mount Olive. ☆

BLACK-THROATED BLUE WARBLER.

Plate 42, Fig. 21

Dendroica caerulescens caerulescens (Gmelin). [654]

DESCRIPTION. Male: rich gray-blue with or without a few black streaks on back; throat, sides of head and neck and sides of body, black; otherwise pure white below, a conspicuous white patch at base of primaries. Female: dull olive-greenish without black; known by the white patch at base of primaries which is smaller than in the male and sometimes hardly perceptible. Length 4.90-5.30; wing 2.32-2.80; tail 1.85-2.20. Fall plumage the same as in the spring.

RANGE. Breeds from southern Canada to northern Connecticut and mountains of Pennsylvania; winters from south Florida to Central America.

RANGE IN NORTH CAROLINA. Transient throughout the State.

The name of the handsome Black-throated Blue Warbler describes with accuracy the chief colorations of the male. The female is much less conspicuously marked, but the white spot on the dull olive-green wing renders its identification easy. This is one of the numerous species of this family that troop through the State twice every year. It has been noted at Raleigh in spring from April 7 to May 19, and in autumn from September 16 to October 23; and on one rare occasion, November 19 (1886). This form of the Black-throated Blue has been found near the coast in Craven County (May 8-10) and interiorly as far west as Mount Mitchell, for Burleigh writes: "Two females, taken September 1 and October 7, 1932, are clearly referable to this form."

CAIRNS'S WARBLER.

Dendroica caerulescens cairnsi Coues. [654a]

DESCRIPTION. Similar to preceding but darker, the middle of the back normally with considerably more black. Female: indistinguishable from the preceding form.

RANGE. Breeds in the southern Alleghanies; winters in the West Indies.

RANGE IN NORTH CAROLINA. Breeds in the mountain region from about 3,500 feet up. Migrates to the tropics in autumn.

In *The Auk*, January, 1897, p. 96, Elliott Coues described a new variety of warbler from the mountains of North Carolina, and named it Cairns's Warbler for John S. Cairns, of Weaverville, Buncombe County, whom Coues said was "its discoverer and original describer." It is much like the form discussed previously, the distinctive difference being that the male of the North Carolina bird bears an area of black feathers in the middle of the back.

This subspecies is a breeding bird in "the Canadian and Transition Zones of the southern Alleghanies, from Maryland to Georgia." In other words, look for it in North Carolina in the higher mountains above the 3,000 feet elevation mark. However, Wetmore records a specimen taken May 1, 1939, at Clinton, Sampson County.

After examining specimens of male birds collected by Bruner and Feild near Blowing Rock in the breeding season (June, 1911), C. S. Brimley reached this conclusion: "From the data available I am led to believe that Cairns's Warbler is simply the extreme plumage of the breeding males of our mountains, and that

others of the breeding males in the same region are indistinguishable from typical Black-throated Blue Warblers."

Among the many observers who have penetrated the haunts of Cairns's Warbler is Ladd, who gives an interesting account in the *Ornithologist and Oologist,* September, 1892, of the breeding of these birds on Craggy Mountain, which he visited in company with Cairns. Nests were found at elevations of from 4,000 to 6,000 feet, many being examined from May 5 to 26. They were mostly built in a weed known as the rattleweed (*Caulophyllum thalictroides*), but one was among rhododendron shoots. All were composed externally of strips of rhododendron or grapevine bark, interwoven with pieces of birch bark, moss, and spider webs, and were lined with fibers. They varied from ten inches to three feet from the ground.

The eggs were greenish-white in ground color, or sometimes buffy-white, and were more or less heavily marked with different shades of brown and lilac, sometimes in a wreath around the larger end and sometimes all over. The favorite haunts of this bird, according to Ladd, are among the rank weeds and ferns that spring from between the rocks and fallen trees in the more heavily timbered ravines—places invariably spoken of by the country folk as "rattlesnake dens."

MYRTLE WARBLER.

Plate 43, Fig. 6

Dendroica coronata (Linnaeus). [655]

Description. Adults: in breeding plumage bluish-ash above streaked with black; underparts white heavily streaked with black; crown patch, rump, and a patch on each side of breast, yellow; winter birds brownish with the markings dull and obscure; four yellow patches are always present and the yellow rump is particularly noticeable. Length 5.07-5.85; wing 2.60-3.07; spread 8.31-9.37; tail 2.00-2.45.

Range. Breeds throughout much of Canada and south to New York State. Winters from the Ohio Valley and New Jersey to Panama.

Range in North Carolina. Whole State in winter and during the migrations, ranging up to about 2,000 feet in the mountains. Recorded twice above 6,000 feet, on Mount Mitchell, September 30, 1932, and October 18, 1933 (Burleigh).

The Myrtle Warbler is commonly seen in North Carolina in its dull winter plumage, arriving from the north about the tenth of October and leaving early in May, some lingering until May 18, which is the latest date we know of its occurrence at Raleigh, Chapel Hill, and in the mountains. This is one of the species which has a spring moult as well as the usual one in the fall, the birds changing to the bright summer plumage in April and early May; however, many depart for the north before the moult has been acquired.

The food of the Myrtle Warbler, while in North Carolina, consists largely of berries, such as those of the sumac, poison oak, *Ilex,* and red cedar. These birds in winter and early spring swarm literally by thousands among the yaupons and cedars on Shackleford and Bogue Banks near Beaufort. E. L. Green, Jr., reported it abundant at Cape Hatteras in winter (*The Chat,* 1939, p. 18).

Samworth, writing from Marines near the mouth of New River in Onslow County, says:

WARBLERS

1. YELLOW-THROATED WARBLER
2. BLACKBURNIAN WARBLER, a. MALE; b. FEMALE
3. AMERICAN REDSTART, a. MALE; b. FEMALE
4. CANADA WARBLER, a. MALE; b. FEMALE
5. KIRTLAND'S WARBLER, a. MALE; b. FEMALE
6. MYRTLE WARBLER, a. MALE IN SPRING; b. FEMALE IN AUTUMN
7. MAGNOLIA WARBLER, a. MALE IN SPRING; b. FEMALE
8. BAY-BREASTED WARBLER, a. MALE IN SPRING; b. AUTUMN
9. CHESTNUT-SIDED WARBLER, a. MALE IN SPRING; b. IMMATURE IN AUTUMN
10. CAPE MAY WARBLER, a. MALE; b. FEMALE
11. BLACK-POLL WARBLER, a. MALE; b. FEMALE
12. BLACK AND WHITE WARBLER, MALE
13. BLACK-THROATED GREEN WARBLER, a. MALE IN SPRING; b. FEMALE IN SPRING; c. AUTUMN
14. PINE WARBLER
15. WESTERN PALM WARBLER
16. YELLOW PALM WARBLER
17. PRAIRIE WARBLER, MALE
18. LOUISIANA WATER-THRUSH
19. NORTHERN WATER-THRUSH
20. OVEN-BIRD

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WARBLERS II.

"The Myrtle Warbler winters on New River in countless swarms. There are days when the underbrush teems with them, provided this contains their favorite food, the fruit of the bay myrtle. A few generally arrive about the middle of October, and from then until frost, they are with us in increasing numbers. Many pass on and about the middle of November they thin out to some extent to the regular winter population, which remains until spring.

"I have noticed a peculiar trouble from which this species suffers. On five occasions I have picked up freshly dead Myrtle Warblers, and found attached to the neck of each one a large, fully-bloated wood tick."* (See note below).

This warbler does not entirely depend on the seeds of the myrtle berry for its food. It is fond of small insects and has the habit of popping out from its perch a few feet, grabbing some insect, and then swinging back to its perch, all with one continuous movement.

☆ New dates are August 28th (Cape Hatteras) and May 30th (Arden). ☆

NOTE: *"Probably *Ixodes brunneus*. It has been recorded in North Carolina attached to the head or neck of the Tufted Titmouse, Starling, and Slate-colored Junco. So far as I know, this is the only tick in the State that matures by engorging on birds and seems not to attach itself to any other class of animals."—C. S. BRIMLEY.

BLACK-THROATED GREEN WARBLER.

Plate 43, Fig. 13

Dendroica virens virens (Gmelin). [667]

DESCRIPTION. Clear yellowish-olive; sides of head yellow; whole throat and chest black; rest of underparts white or yellowish-white; wing bars white. Females and fall specimens with the black interrupted or veiled by yellowish. Length 4.85-5.24; wing 2.32-2.65; tail 1.85-2.12.

RANGE. Breeds from Alberta to Newfoundland and south in the mountains to northern Georgia. Winters from Mexico to Panama.

RANGE IN NORTH CAROLINA. Breeds in the mountains, elsewhere a transient.

In spring, migrating Black-throated Green Warblers arrive in central North Carolina in April, and leave during May. The extreme dates for Chapel Hill are April 19 to May 24. They return in September and are with us for a few weeks. The Chapel Hill records for autumn range from September 15 to October 10 (Odum). In the mountains some have been seen until October 31, which is about two weeks later than the latest date of its known occurrence at Raleigh. Wetmore reports one near Southport, May 18, 1939.

Bruner and Sherman have found it much in evidence at Blowing Rock in June and later; the former also reported it breeding in June, 1909, west of Taylorsville. Rhoads found it nesting on Roan Mountain in 1895, and Sherman said it was common at Linville in late June, 1909. Burleigh said it breeds to the top of Mount Mitchell and that it is found on the mountain from April to early October. On August 15 (1932), a male was seen feeding a young bird as yet barely able to fly.

The nests are built on the horizontal limbs of coniferous trees.

☆ An early date is March 22nd (Raleigh) and a late date is October 22nd (Greensboro). ☆

WAYNE'S WARBLER.

Dendroica virens waynei Bangs. [667a]

DESCRIPTION. "Similar to true *Dendroica virens* (Gmel.) but duller in general coloration, the black throat patch rather more restricted, especially on sides of breast and chest; breast and belly whiter,—much less suffused with yellowish; upperparts duller, less yellowish olive-green; wing bands slightly duller whitish and slightly narrower; sides of head paler yellow. Size about the same; bill only two-thirds as large." . . . (O. Bangs, *Proc. New England Zool. Club*. 6. 93-94, Oct. 31, 1918.)

RANGE. Summer resident in coastal districts of North and South Carolina.

RANGE IN NORTH CAROLINA. Cypress swamps of the eastern sections, extending inland as far as Raleigh at least during the spring migration.

As indicated above, Wayne's Warbler is a closely related subspecies of the Black-throated Green Warbler. Wetmore, in "Notes on Birds of Tennessee" (1939) maintains that the only difference between the two birds is that Wayne's has a somewhat smaller and more slender bill. He states that the supposed color differences do not hold in all cases. At White Lake in Bladen County, Sherman and H. H. Brimley found it singing every day of their stay from May 18 to May 22, 1909. Smithwick reported it feeding young on the banks of the Neuse River near LaGrange, Lenoir County, in the latter part of June, 1905. In mid-June, 1910, H. H. Brimley observed one at Lake Ellis, carrying food to its young. The bird was watched at a distance of only a few feet. It may be noted that there is a cool, dense shade in the primeval forests about the lakes in Craven County, which may serve the birds quite as well as more boreal conditions.

Wayne's Warbler reaches Raleigh in March, our earliest date being March 22, and it has been noted near Washington, March 25 (1932). Burleigh heard one singing at Lake Mattamuskeet, May 25 (1932); R. B. Richardson saw several females and immature birds in the Dismal Swamp June 20 (1926); and Wetmore records one at Bluff Mountain, Ashe County, July 15 (1939). As yet we have no record of the actual discovery of a nest of this bird in North Carolina.

CERULEAN WARBLER.

Plate 42, Fig. 22

Dendroica cerulea (Wilson). [658]

DESCRIPTION. Bright blue above with black streaks; underparts white with a band of black spots or streaks across the breast. Female: not streaked, greenish above, slightly yellowish beneath. Known in all plumages by having white spots near the tips of nearly all the tail-feathers. Length 4.00-5.00; wing 2.40-2.70; spread about 7.50; tail 1.70-1.90.

RANGE. Breeds from Minnesota and southern Ontario southward to piedmont North Carolina and northern Georgia and Texas. Winters in northern South America.

RANGE IN NORTH CAROLINA. Transient in migration, also breeds sparingly.

Specimens have been recorded in Wake County by the Brimleys in May, August, and September, between 1887 and 1898. Cairns regarded it as a rare transient in Buncombe County. Burleigh at Asheville wrote: "I have but three records of its occurrence either in spring or fall, a male being seen April 23, 1930,

another male August 21, 1930, and a female August 9, 1934." A. M. Law and E. A. Williams identified a Cerulean Warbler at Tryon during the last week of April, 1941.

Wayne saw an adult feeding young at Morganton on May 28, 1909. At Greensboro in the summer of 1929, E. E. and F. R. Brown watched an adult feeding young under a tree in which was a nest believed to be of this species. M. E. Stimson found nest with young "apparently of this species" at Statesville in the summer of 1930.

The nest is said to be built in deciduous trees and to be a compact, cup-shaped structure. The eggs are white, speckled with brown, and measure .69 x .53. Burleigh found these birds at Asheville only as April and August migrants.

☆ An eastern record is for Wilmington (April 9th). ☆

BLACKBURNIAN WARBLER.

Plate 43, Fig. 2

Dendroica fusca (Müller). [662]

Description. General color of upperparts black; middle of crown, line over eye, patch behind the black ear-coverts, throat, and breast, rich orange; back streaked with whitish; belly pale yellow; wings with a large white patch including both wing-coverts; tail with inner webs of most tail-feathers almost entirely white. Female: duller, back olive-green, streaked with black and whitish; white on wings and tip less extensive. Immature birds: still duller. Length 4.25-5.50; wing 2.50-2.80; spread 7.87-8.31; tail 1.90-2.10.

Range. Eastern North America, breeding from northern United States northward and south in the mountains to northern Georgia. Winters mainly in South America.

Range in North Carolina. Transient in central Carolina; breeds in the mountains.

The Blackburnian Warbler is known in central North Carolina mainly as a fall transient, at which season it has been observed at Raleigh from September 10 to October 13. At Durham it was taken by Seeman on May 3 and October 24, 1906. At Chapel Hill they have been seen by Pearson, Odum, and others in April, May, and September.

In the mountains it is a regular summer visitor, arriving about the middle of April, and leaving the latter part of September. In Buncombe County, Cairns has recorded it as breeding at an elevation of about 3,500 feet. Brewster reported it as abundant in late May, 1885, in Jackson and Macon Counties, everywhere above 3,000 feet, and as one of the most common birds at Highlands and on the crest of the Cowee Mountain range.

Twenty-three years later Sherman and C. S. Brimley took a male in full breeding condition about halfway up Joanna Bald Mountain, near Andrews, on May 14, 1908. Bruner, Murray, and Sprunt have found this warbler at Blowing Rock. Rhoads records it as breeding on Roan Mountain. Feild and Bruner found it common on Grandfather Mountain in June, 1911, and Brown noted one building a nest here on June 11, 1929.

The nest is placed in a coniferous tree, often on a horizontal limb. It is bulky, for a warbler's, and is usually a densely woven mass of small twigs, vegetable down, and rootlets, lined with horsehair and feathers.

☆ Fall dates are October 10th (Rocky Mount) and August 27th (Greensboro). ☆

YELLOW-THROATED WARBLER.

Plates 41 and 43, Fig. 1

Dendroica dominica dominica (Linnaeus). [663]

DESCRIPTION. Upperparts gray; a white superciliary line, becoming yellow, in front of the eye; forehead blackish; two white wing bars; throat yellow; cheeks and sides of throat black; lower breast and belly white; the sides streaked with black. Female: slightly duller. Length 4.70-5.75; wing 2.45-2.75; spread 7.75-8.69; tail 2.00-2.30.

RANGE. Breeds in the Lower Austral Zone from Maryland to middle Florida. Winters from South Carolina to the West Indies.

RANGE IN NORTH CAROLINA. Summer resident east of the mountains.

The Yellow-throated Warbler has been found at Raleigh from March 9 to September 25. In the mountains Cairns did not record it as arriving until the third week of April; and at Andrews, farther south, Mrs. Wilson's only record of arrival was April 24, 1902.

At Raleigh its eggs have been found from April 22 to June 7. Frequently its nest is constructed on the horizontal limb of a pine, at a height of from twenty to forty feet. One nest, the description of which C. S. Brimley preserved, was about three inches in outside diameter and two inches across inside. In depth it was two and a half inches on the outside and one and a half inches within. It was composed of weed stems and lined with horsehair. All nests here examined were similar, but the lining sometimes was of feathers or fine grass or a mixture of both. The eggs are usually four in number, and dull greenish or grayish-white, spotted with various shades of brown and lavender-gray, almost entirely near the larger end. Size .65 x .50.

This species is one of our most characteristic summer warblers, being seen mainly in pinewoods or swampy places. It is abundant in the cypress swamps of the coastal region, where it frequently nests in the long, gray moss hanging from the trees. In habits it has something of the creeping ways of the Black and White Warbler, but frequents the branches and twigs of trees only, not running about on the trunks. Its song is very distinctive, being loud, ringing, and little like the trilling or buzzing song of the average warbler.

From observations made of it around Asheville during the years 1930-35, Burleigh writes: "A common bird here during the summer months, but limited in its distribution to stretches of woods in the valleys where the short-leaf pine was found. At no time were any seen on the mountainsides. . . . My earliest date for arrival in spring is March 28, 1935, my latest date for departure in the fall September 28, 1933. Specimens taken were found to be intermediate in their characteristics between *dominica* and *albilora*, so it is probable that these Yellow-throated Warblers are worthy of recognition as a distinct race occurring in the Southern Appalachians, but further study will be needed to verify this surmise."

☆ Late dates are October 26th (Raleigh), December 21st (Lake Mattamuskeet), December 23rd (Mount Olive) and December 28th

(Wilmington). Western nesting records are for the counties of Henderson and Yancey. ☆

SYCAMORE WARBLER.

Dendroica dominica albilora Ridgway. [663a]

Description. Similar to the preceding but the superciliary stripe is entirely white, and the bill is slightly shorter.

Range. Mississippi Valley; winters in Mexico and Central America.

Range in North Carolina. Mountain region in summer.

Fig. 92. Sycamore Warbler.

There are three Sycamore Warbler skins in the collections of William Brewster, which were taken by Cairns in Buncombe County on April 18, 1890, and June 5 and 12, 1886; also, Bruner took one at Edgemont, Caldwell County, June 28, 1910. Mrs. Donald Wilson reported it at Andrews, April 24, 1902. Sprunt found these birds, in August, at Blowing Rock, in 1928-29, and also reported two at Montreat during the first ten days of September, 1929. Wayne referred warblers seen near Morganton and Lenoir to this form, but we think it more probably that he saw the common eastern Yellow-throated Warblers.

The Sycamore Warbler is merely the western subspecies of the Yellow-throated and its habits are not dissimilar.

CHESTNUT-SIDED WARBLER.

Plate 43, Fig. 9

Dendroica pensylvanica (Linnaeus). [659]

Description. Blackish above, much streaked with whitish-olive; crown clear yellow bordered by a black stripe on each side which extends from bill to and through eye; sides of head and entire underparts white, bordered on each side by a broad chestnut stripe; wing patch yellowish, never pure white. Females: duller; fall specimens yellowish-green above and white beneath. Length 4.85-5.20; wing 2.25-2.62; spread 7.50-8.06; tail 1.75-2.00.

Range. Breeds from Saskatchewan and Newfoundland southward to New Jersey and through the Alleghany Mountains to northern South Carolina.

Range in North Carolina. Transient in the central region from Raleigh, west; breeds in the mountain region from 2,000 feet upward.

Although the Chestnut-sided Warbler is an abundant species and seemingly should pass through North Carolina in great numbers, we have thus far learned of its appearance only in a comparatively few communities, fifteen or twenty perhaps. In migration it gleans its insect food almost anywhere that shrubbery

and trees are found. Our earliest record for it in autumn is August 17 and the latest October 12. Spring birds have been found in the State, April 25 to May 15 (Odum at Chapel Hill).

In the mountains, where it breeds at from 2,000 to 6,300 feet elevation, it is, of course, present throughout the summer. C. S. Brimley took a female just ready to lay at Blantyre, Transylvania County, May 5, 1908; Cairns found an occupied nest, May 25, 1887, on Craggy Mountain in a rhododendron bush at a height of only three feet. The species has also been recorded in summer at Asheville, Blowing Rock, Highlands, and on Grandfather and Roan Mountains. The Chestnut-sided Warbler seems to prefer to pass its time in low growth in open, deciduous woods or in bush-grown fields.

☆ Early dates are for Raleigh (April 19th) and Highlands (April 4th). A late date is for Highlands (October 18th). ☆

BAY-BREASTED WARBLER.

Plate 43, Fig. 8

Dendroica castanea (Wilson). [660]

DESCRIPTION. Back ashy-olive, streaked with black; forehead and sides of head black, enclosing a chestnut crown patch; sides of neck buff; throat and sides chestnut, otherwise buffy below. Female: more olivaceous, lacking the chestnut on head and throat. Both females and autumnal birds resemble the Black-poll Warbler of similar plumages, but have the under tail-coverts buffy instead of white. Measurements similar to those of the Black-poll Warbler.

RANGE. Breeds from Alberta and Newfoundland to New York State.

RANGE IN NORTH CAROLINA. Transient at least in central and western parts of the State.

Writing of the occurrences of this bird at Chapel Hill, Odum *et al.* said:

"Transient, rare in spring, May 11 and 12, 1933, only records; apparently much more common in fall. Although the Bay-breast and the next species, the Black-poll, are very different in the spring plumages, they are so much alike in the fall that identification without specimens is hazardous; if there is a large distinct chestnut side patch the bird can be named a Bay-breast, but if there is little or no chestnut, as in the majority of birds, positive identification of the living bird, we think, is impossible. Therefore we will say that a specimen taken by Odum, October 7, 1934 (and two taken by Pearson, October 2 and 8, 1897), are the only positive fall records. . . ." (*The Birds of Chapel Hill*, 1935).

In addition to the above, we have Wayne's record at Morganton in September and October, 1908, and Wetmore's October 4, 1939, record at Statesville. In Transylvania County, Sherman and C. S. Brimley secured three males on May 4 and 5, and saw another May 8, 1908. E. E. Brown recorded one at Salisbury, May 3, 1924; and F. R. Brown counted five at Davidson, Mecklenburg County, May 7-12, 1929. Burleigh says: "A somewhat scarce but regular fall migrant in the fir and spruce woods at top of Mount Mitchell," September 12 to October 7 (1930). He found it "a common migrant" about Asheville.

☆ Spring records are extended to April 23rd (Tryon) and May 15th (Highlands). Return dates are October 19th (Greensboro) and October 31st (Tryon). ☆

BLACK-POLL WARBLER.

Plate 43, Fig. 11

Dendroica striata (Forster). [661]

Description. Crown black; sides of head below level of eye, white; back ashy streaked with black; two white wing bars; underparts white with black streaks; females olive-green streaked with black; underparts white tinged with yellow; breast and sides distinctly streaked with black. Fall birds are similar but not distinctly streaked above or beneath, the underparts more yellow. Length 5.00-5.75; wing 2.60-2.90; spread 8.50-9.50; tail 2.05-2.20.

Range. Breeds from Alaska to Maine. Winters in northern South America to Brazil.

Range in North Carolina. Whole State during the migrations.

This is one of the warblers that is a great traveler, and when one leaves its summer home at the tree limit region in Alaska, goes to Brazil for the winter and then returns, it has flown at least 10,000 miles besides the countless miles traversed in its daily restless search for the insects upon which it feeds. It is a very abundant species and is one of Nature's outstanding successes in the realm of small bird life.

Fig. 93. Black-poll Warbler.

It migrates later in its spring and fall flights than do the other warblers. Thus, in spring it has been seen in passage in Wake County from April 26 to June 3. The extreme autumn dates for the State are September 20 and November 6. There are numerous localities where it has been found in North Carolina from Hyde County on the coast to Cherokee County in the far west. In fall plumage it may easily be mistaken for the Bay-breasted.

☆ Dates are extended to April 16th (Raleigh), August 28th (Cape Hatteras) and September 1st (Highlands). ☆

NORTHERN PINE WARBLER.

Plate 43, Fig. 14

Dendroica pinus pinus (Wilson). [671]

Description. Yellowish-olive above; underparts and superciliary line dull yellow. Female: sometimes like male but slightly duller, more often, however, dull brownish-olive

above and dirty whitish beneath, little if at all tinged with yellow. Length 5.25-5.85; wing 2.65-3.12; spread 8.50-9.75; tail 2.00-2.35.

RANGE. Breeds from southern Canada to Texas and the Gulf States; winters from the coast of Virginia to Florida.

RANGE IN NORTH CAROLINA. Apparently whole State at all seasons, but much less numerous in the mountain region.

In spring and early summer the songs of Northern Pine Warblers may fall to your ears as you pass through almost any grove of loblolly, shortleaf or longleaf pines throughout the State. It is only a summer visitor in our mountains, but elsewhere it is a permanent resident.

The Brimleys, who have studied the bird in the Raleigh region, state that here the nest is built on the horizontal limb of a pine at a distance from the ground varying from ten to seventy feet. The structure is composed of strips of grapevine bark and weed stems, lined with horsehair and feathers. Often the outside is decorated with cobwebs. The eggs are four of a grayish-white ground color, speckled and spotted with chestnut and lilac, the markings sometimes forming wreaths about the larger end. Nests have been found as early as March 20 and as late as June.

Generally about two weeks is sufficient time to build the nest and deposit a full set of eggs, unless interrupted by unseasonable weather. If the nest is taken, the birds will at once build another, and this will have its full complement of eggs in two weeks from the time the first was destroyed. This action will be repeated several times, if the birds are continually disturbed. Although the Pine Warbler is essentially a bird of the pinewoods, in the fall and winter it often resorts to mixed woodlands, and when food is scarce, it sometimes collects about dwellings and farmyards and even in open fields.

KIRTLAND'S WARBLER.

Plate 43, Fig. 5

Dendroica kirtlandi (Baird). [670]

DESCRIPTION. Upperparts, including sides of head and neck, bluish-gray; the back broadly streaked with black; lores and narrow band on forehead black; a white spot on each eyelid; underparts plain yellow; the chin and under tail-coverts white; the sides streaked with black. Female: duller. Length 5.30-6.00; wing 2.60-2.90; tail 2.25-2.50.

RANGE. Known to breed only in Oscoda, Crawford, and Roscommon Counties, Michigan. Winters in the Bahama Islands.

RANGE IN NORTH CAROLINA. Only recorded from Rocky Mount.

Although Kirtland's Warbler has been found during migration in all the other South Atlantic States, it was not until September 2, 1936, that one was observed in North Carolina. The interesting discovery of its presence was made by F. H. Craighill at Rocky Mount. He also observed the bird on September 22, 1938, and September 23, 1941.

NORTHERN PRAIRIE WARBLER.

Plate 43, Fig. 17

Dendroica discolor discolor (Vieillot). [673]

Description. Upperparts bright olive-green; back spotted with rufous; wing bars yellowish; a yellow line over eye; lores and a crescent below eye black; underparts yellow; the sides streaked with black. Female: similar but lacks most or all of the rufous on back. Immature birds: still duller without wing bars. Length 4.25-5.00; wing 2.10-2.30; spread 6.55-7.31; tail 1.90-2.10.

Range. Breeds from New England (along the coast) to central Georgia. Winters from central Florida southward through the West Indies.

Range in North Carolina. Summer visitor, whole State but mainly east of the mountains.

The Prairie Warbler spends its summer mainly within the United States. In the warm months it may be found at many places in the Mississippi Basin and in every Atlantic Coast State from Massachusetts to Florida. When winter comes a few linger in southern Florida, but most of them pass on to warmer regions where the presence of an abundant supply of insects is assured. Many leave North Carolina in September, but one was seen at Chapel Hill on October 1. They reappear with the warm days of early spring, having been noted at Chapel Hill, April 10, and at Raleigh, April 5. Burleigh has seen this warbler at Asheville in "early December."

Nesting begins late in April. Eggs have been found as early as May 6 in Dare County, and May 12 at Raleigh. The birds prefer open bushy country as their habitat. C. S. Brimley states that in Wake County they seem to prefer saplings of the sweetgum as nesting sites, although elms, sumac and other trees are used. In constructing the nest the gray leaves of rabbit tobacco (*Gnaphalium*) are often utilized.

At Cape Hatteras, May 9, 1898, a nest containing five slightly incubated eggs was found. It consisted largely of sheep's wool gathered from fragments attached to near-by bushes. Nests are made in low situations, generally three to ten feet from the ground. Kelly found eggs in Cumberland from May 6 to 25, and Craighill noted a brood of young in Hendersonville during July, 1936.

☆ Wilmington supplies an early record (March 20th) and a late record (October 15th) and three December records. ☆

WESTERN PALM WARBLER.

Plate 43, Fig. 15

Dendroica palmarum palmarum (Gmelin). [672]

Description. Similar to the Yellow Palm Warbler, but smaller, with the yellow of the underparts confined to the throat and breast; belly dirty white; immature and fall birds have the underparts mostly whitish, but the under tail-coverts always yellow. Length 4.50-5.50; wing 2.35-2.65; tail 2.05-2.45.

Range. Breeds from northern Minnesota northward; generally winters from southern Florida to Yucatan and the West Indies.

Range in North Carolina. Migrant, and rarely a winter visitor. Not common.

This is one of the numerous warblers that come out of the north country, pause with us for a time, then vanish until spring again brings them to our countryside.

This western species was found by Craighill at Rocky Mount, April 20, 1936. Cairns found it in Buncombe, May 8-13; at Raleigh one was taken by C. S. Brimley, May 1, 1893. Wetmore reported one at Reidsville, September 25; one at Statesville, October 9; and still another at Stumpy Point, October 27, all in 1939. R. B. Wallace saw several at Asheville late in October, 1935. (*The Auk*, 1936, p. 227.) J. T. Nichols found one in Currituck County, January 1, 1915.

Turning again to Burleigh's manuscript on the birds of Asheville, we find: "Despite the very few records of its occurrence in the State, this western race of the Palm Warbler proved to be a common migrant about Asheville both in the spring and in the fall. It was especially numerous in autumn when from late September through the middle of October small flocks were seen daily about the open fields and pastures. My extreme dates for the spring migration are April 17 (1930) and May 7 (1934), and for the fall migration, September 8 (1932) and November 2 (1933). I have one record for occurrence during the winter months, a single bird, a male, being seen feeding with a flock of Bluebirds on January 25, 1934."

☆ New records are 44 from 16 localities from the coast to the western border. ☆

YELLOW PALM WARBLER.

Plate 43, Fig. 16

Dendroica palmarum hypochrysea Ridgway. [672a]

DESCRIPTION. Crown chestnut; back brownish olive-green; rump brighter; no distinct wing bars; line over eye, ring around eye and entire underparts, including tail-coverts, yellow; breast and sides streaked with rufous. Immature: autumn birds with less evident crown patch and somewhat duller. Length 4.90-5.75; wing 2.50-2.80; spread 7.63-8.69; tail 2.25-2.55. Underparts entirely yellow in any plumage.

RANGE. Breeds from Ontario and Newfoundland southward to Maine. Winters mainly from Florida to Louisiana and casually northward to New England.

RANGE IN NORTH CAROLINA. A transient throughout the State; occasional in winter.

The Yellow Palm Warbler differs from the Western Palm Warbler chiefly in being more yellow. These birds are not inhabitants of the forests while with us, but appear in shrubbery whether this be in yards, gardens, or by the roadside. They have a custom of wagging the tail with great frequency as they stand on their perch. There are many more records of this bird in North Carolina than there are of the western variety. At Raleigh they have been noted from September 16 to April 24. At three places they have been seen in January: One at Castle Hayne, New Hanover County, observed by Sherman in 1911; one at Mattamuskeet Lake, identified by Earle Greene, on January 21, 1936; and one found dead near Durham, January 15, 1933, that bore a government band which had been placed on its leg at Elmhurst, New York, October 13, 1932.

It is not always easy to determine with accuracy which subspecies of the Palm Warbler one may be watching. Both have reddish caps but in the winter plumage the western has a white stripe over the eye where the eastern bird shows yellow.

Often they are seen with other warblers during migration, and are inclined to haunt the brush of abandoned fields and the edges of woodlands. In autumn they consume many seeds and small wild berries, but in spring they eat insects to a very pronounced degree. Here, from the Yellow Palm Warbler's standpoint, are some of the foods that are particularly palatable: gnats, mosquitoes, and all available varieties of flies; ants and plant lice; bugs and beetles; and the pieces of the many grasshoppers it is able to tear asunder.

☆ Later spring records are May 5th (Raleigh) and May 10th (Mount Olive.) ☆

Genus **SEIURUS** Swainson.

Rather large, plain-colored warblers without markings on back, wings, or tail and with the underparts white or buff, heavily streaked with black on the breast and sides. The gait is a walk, not a hop. Three species occur in North Carolina.

OVEN-BIRD.

Plate 43, Fig. 20

Seiurus aurocapillus (Linnaeus). [674]

DESCRIPTION. Crown, orange-brown with a black stripe on each side; rest of upperparts greenish-olive; underparts white, streaked with black. Length 5.40-6.50; wing 2.75-3.00; spread 9.25-10.00; tail 2.00-2.25.

RANGE. Breeds from Alaska and Newfoundland to Missouri and northern Georgia. Winters from Florida to northern South America.

RANGE IN NORTH CAROLINA. Whole State during the migrations; breeds from Raleigh westward, scarce or local breeder in the east.

The Oven-bird, also called Golden-crowned Thrush, is a summer resident in North Carolina. It has been known to arrive at Raleigh as early as March 29 and to be present as late as October 23. It frequents dense, shady woods, where one may constantly hear its sweet, impulsive song—*teacher, teacher, teacher.*

In the mountains this is one of the most characteristic and abundant birds of the dense woods, breeding commonly in suitable situations during May and June. The nest is built on the ground, of leaves, grasses, and fibers, and is lined with hair and fine grass. In form it is dome-shaped with the entrance on one side. The eggs number four or five, and are white, spotted and speckled with brown and gray, the markings becoming more prominent at the larger end. Size .75 x .57.

Eastward from the mountains the species is reported as breeding at Statesville, Old Richmond (Forsyth County), and Chapel Hill. Besides these localities, Bruner found it nesting rather commonly near Raleigh in 1907 and 1908. Smithwick reports a nest in Bertie County, May 19, 1892; and H. H. Brimley flushed a bird from its nest near Lake Ellis in Craven County in May, 1906. It gathers its food from the ground and is one of the few small birds that does not hop, but walks.

☆ A winter record is for Raleigh (December 22, 1947). ☆

NORTHERN WATER-THRUSH.

Plate 43, Fig. 19

Seiurus noveboracensis noveboracensis (Gmelin). [675]

DESCRIPTION. Upperparts, wings and tail dark olive-brown; stripe over eye buffy; underparts white tinged with pale yellow, this more pronounced in the autumn, streaked everywhere, including throat, with black. Length 5.00-6.00; wing 2.80-3.10; spread 8.87-10.00; tail 2.00-2.25.

RANGE. Breeds from the mountains of West Virginia to Newfoundland; winters from Florida to northern South America.

RANGE IN NORTH CAROLINA. Transient in spring and autumn migrations.

This bird, sometimes called the Small-billed Water-Thrush to distinguish it from the next species, appears to be a rather uncommon spring and fall transient throughout North Carolina. It has been recorded at Raleigh from April 18 to May 28 in spring, and from July 25 to October 12 in autumn. The records we have from Andrews, Chapel Hill, Durham, Rocky Mount, and Weaverville fall within these periods. It is by no means a common bird in this State.

In the Asheville region, Burleigh regarded it as an infrequent migrant. During the five years he was engaged in collecting birds for the government in that territory, he took fifty-five specimens belonging to this species but only five of them were found to be the typical Northern Water-Thrush. Three of these were secured in the month of May when migrants were moving northward; two were taken during the autumn southern migration; one on August 31, 1932; and the other on September 12, 1932.

Wayne, in *Birds of South Carolina* (1910), writing of birds in the low coastal country said: "During the spring migration the Water-Thrush sings with much vigor, but in the autumn migration rarely sings. Although it is eminently a swamp lover, it is commonly found in great numbers in autumn in cotton fields and wherever pea vines are growing, *i.e.*, in dry situations." He also tells of taking a specimen one very cold day, "and as insect life was absent the bird had eaten a few small minnows."

The three water-thrushes that occur in the State are not easy to identify in the field, but the pale yellow on the breast of this bird distinguishes it from the Louisiana Water-Thrush, and the song when once learned will help in identification.

Water-thrushes frequent shady lowgrounds or the edges of sluggish streams, where they run about on the bare patches of sand or mud beneath the shadow of the overhanging ferns or shrubbery, uttering at intervals a sharp chirp, and bobbing continually as they walk.

GRINNELL'S WATER-THRUSH.

Seiurus noveboracensis notabilis Ridgway. [675a]

DESCRIPTION. Very similar to the Northern Water-Thrush, but is slightly larger. It is darker above and the underparts and stripe over the eye are whiter.

RANGE. Breeds in Alaska and southward to British Columbia and northwestern Michigan. Migrates southward to winter in the Bahamas, Cuba, Mexico, Central America, and northern South America.

RANGE IN NORTH CAROLINA. Spring and fall migrant.

This western form of the water-thrush, when seen in the field, may easily be mistaken for the preceding species. Although this bird breeds in the far Northwest numerous individuals annually migrate many thousands of miles across the North American Continent in a southeasterly direction to pass the winter in the Bahamas and the West Indian Islands. Often in the southeastern States they appear in greater numbers than does their close relative, *S. n. noveboracensis* which breeds in our northeastern States and eastern Canada. Wayne found this to be the case in South Carolina. Burleigh, who on April 26, 1930, was first to find Grinnell's Water-Thrush in North Carolina, said that it "proved to be a common migrant about Asheville." Over a period of four years he found it very frequently in April, May, August, September, and October, and he pointed out that it was "seen both in spring and in fall in stretches of woods bordering the streams in the valleys."

While W. M. Perrygo and C. L. Wheeler were collecting birds for the United States National Museum on Hogan Creek, seven miles northwest of Reidsville, Rockingham County, on September 18, 1939, a water-thrush was taken which Wetmore identified as this subspecies. In addition to Burleigh's findings at Asheville, this Reidsville specimen is the only other record of the bird for this State.

LOUISIANA WATER-THRUSH.

Plate 43, Fig. 18

Seiurus motacilla (Vieillot). [676]

Description. Upperparts, wings, and tail dark olive-brown; stripe over eye and underparts white, the latter streaked with black except on throat. Length 5.75-6.40; wing 3.00-3.25; spread 9.56-10.75; tail 2.10-2.30.

Range. Eastern United States breeding throughout its range; winters in Mexico and southward.

Range in North Carolina. Whole State in summer, except perhaps the southeast corner as we have no records from south of LaGrange and Fayetteville.

The Louisiana Water-Thrush, also known as the Large-billed Water-Thrush, is a summer resident in North Carolina. It arrives during the last half of March, usually in the last week, and we have no record of its remaining later than the end of August at Raleigh, though Burleigh found it once at Asheville on September 24, 1932.

This is a shy, retiring bird and, except when accompanied by its young, is usually seen singly or in pairs. The nest, made in April or May, is rather bulky and usually is placed among tree roots or other supporting material in the vertical bank of some woodland stream. Frequently it is placed near the water and often on the outer curve of a bend. The lower portion of the nest is made of wet leaves, gathered from the water. On a substantial foundation of this material is placed the main structure of grass and weed stems. Although open above, it may be concealed from view by overhanging ferns or other vegetation, and it thus escapes detection unless the bird is seen to fly away. The eggs are four or five in number and have a white, or pinkish-white, ground color, speckled all over with brown, sometimes with additional gray spottings.

The birds feed in wet lowgrounds, at times half a mile or more from the nest. The common note is louder and sharper than that of the preceding species, and the song is clear and ringing. This is delivered in a manner which seems to indicate the musician is in haste to end the performance. This water-thrush is found in all parts of the State, ranging in the mountains up to 5,000 feet and possibly beyond.

☆ Southeastern records are for Wilmington (April 19th-21st and June 4th) and Mount Olive (April 28th and May 10th). A late fall record is for Charlotte (October 2nd) and a winter record is for the Smoky Mountains (January 2, 1954). ☆

Genus **OPORORNIS** Baird.

KENTUCKY WARBLER.

Plate 42, Fig. 1

Oporornis formosus (Wilson). [677]

DESCRIPTION. Bright olive-green above and bright yellow beneath; forehead and sides of head black, the latter broken by a yellow line from bill to eye, curving above and nearly around the latter. Female: slightly duller. Length 5.25-5.75; wing 2.62-2.87; spread 8.50-9.12; tail 1.87-2.18.

RANGE. Breeds from northern Georgia to New England and northern Ohio. Winters in the West Indies and from Mexico to Colombia.

RANGE IN NORTH CAROLINA. Occurs in summer up to 4,000 feet elevation.

Fig. 94. Kentucky Warbler.

The Kentucky Warbler is not an uncommon bird in damp, shady woods, ranging in the mountains up to 4,000 feet elevation, and frequently is found in other parts of the State. The earliest spring record we have of its arrival is at Raleigh, April 15, and the latest date in autumn is October 13, at the same place. C. S. Brimley reports that he once found a nest at Raleigh but the date was not recorded.

The nest is built on the ground, in woods, and is composed of dead leaves, lined with grass, rootlets, and pine straw. The eggs, which are laid in May or June, have a white ground color, and are spotted and speckled with brown and lilac-gray, chiefly at the larger end. Size .73 x .57. This is a handsome species, with

a loud song somewhat resembling that of the Carolina Wren. Being very shy, it is more often heard than seen.

CONNECTICUT WARBLER.

Plate 42, Fig. 3

Oporornis agilis (Wilson). [678]

Description. Olive-green above; ashy on head, throat, and breast, otherwise yellow below; a continuous white orbital ring. Female: similar but duller, the throat and chin mostly brownish-white, deepening to grayish-brown on chest. Length 5.20-6.00; wing 2.65-3.00; tail 1.90-2.20.

Range. Eastern North America, breeding mainly north of the United States and wintering in South America.

Range in North Carolina. A spring and autumn transient.

The Connecticut Warbler has been noted in the State only in six localities, as follows: One was observed on each of the following dates: Raleigh, October 15, 1884, October 15 and 24, 1896, October 13, 1898, and September 28, 1918. Miss M. A. Boggs recorded it at Waynesville, October 9, 1907, and September 21, 1914; Craighill found one at Rocky Mount, September 11, 1935. A specimen, caught by a cat, was received at the State Museum, May 27, 1910, from Miss M. E. Huger, of Highlands. A Connecticut Warbler also was found near Statesville, October 4, 1939 (Wetmore).

Burleigh has this to say on the subject: "In view of the fact that the Connecticut Warbler was found to be a fairly common spring migrant about Asheville it is rather surprising that there are so few records of its occurrence in the State. It was practically the last migrant to arrive in the spring, rarely being observed before the middle of May, but it was noted daily then for an interval of two weeks, and the males were frequently heard uttering their loud ringing song. May 12, 1930, is the earliest date on which it was recorded, May 27, 1930, the latest date one was seen. My one record for the fall is that of a single bird, an adult male, seen at Swannanoa on October 11, 1933."

According to Chapman the only nest that has been found was discovered by Ernest Thompson Seton. It was in a tamarack swamp in Manitoba.

MOURNING WARBLER.

Plate 42, Fig. 2

Oporornis philadelphia (Wilson). [679]

Description. The Mourning Warbler is bright olive-green above, clear yellow below; head ashy; chin, throat, and breast mixed ash-gray and black. Females and fall birds: like the corresponding stages of the preceding, that is, with the throat whitish or buffy and the chest brownish-gray, but distinguished by the absence of an orbital ring and the shorter wing. Length 4.90-5.75; wing 2.15-2.55; tail 1.80-2.25.

Range. Breeds in southern Canada and along the mountains to West Virginia. Winters in Central America and northern South America.

Range in North Carolina. As yet known only as an autumn migrant.

Mrs. Donald Wilson, of Andrews, Cherokee County, reported having seen specimens of this species at Andrews many years ago, but no details are available. McIlwaine saw one at Montreat, July 31, 1935.

Burleigh in his notes says, "Apparently the Mourning Warbler has heretofore never been actually taken in the State, and has been considered an extremely rare migrant, so it was of decided interest to find it fairly plentiful about Asheville in the fall. Its actions then were very suggestive of the Yellow-throat, for it was usually found in association with these birds, and in the same situation, thickets and stretches of underbrush bordering the open fields, so it has probably merely been overlooked in past years. It was usually early September before the first birds were noted, but one or two were seen almost daily until the first of October, my extreme dates of occurrence being August 23 (1930) and October 4 (1933). Since no other specimens have been taken in the State it is probably well at this time to record those collected during this five-year interval: 1930, females August 23, September 7, and October 2; 1932, males September 8 and 29, female September 26; and 1933, females September 27, October 4."

The Mourning Warbler is known to breed in the mountains of Pennsylvania and West Virginia; therefore, it seems to be within the range of possibility that some bird student may find its nest or young in the mountains of our State.

☆ Two specimens were collected at Doughton Park (September 17, 1950). ☆

Genus **GEOTHLYPIS** Cabanis.

Warblers of this genus usually inhabit low thickets and spend nearly all their time within a few feet of the ground. They are olive-green above and yellowish beneath. The males have a broad oblique black band on each side of the head. These meet across the forehead and are bordered behind with gray in our species. This black mask is absent in females and young males.

Three subspecies of *Geothlypis trichas* occur with us.

NORTHERN YELLOW-THROAT.

Plate 42, Fig. 5

Geothlypis trichas brachidactyla (Swainson). [681d]

DESCRIPTION. Not unlike the Athens and Maryland Yellow-throats, but the upperparts are usually greener, and the wing is decidedly longer than the tail.

RANGE. Breeds from North Dakota to Newfoundland and south to New Jersey. Winters from the Bahama Islands to Costa Rica.

RANGE IN NORTH CAROLINA. Transient in migration. May possibly breed in the mountains.

The species generally known as Maryland Yellow-throat appears in North Carolina in three subspecific forms. They are poorly defined for the field observer but from skins taken from cabinets in museums or in the improbable event of one being able to hold living or dead specimens of all three in the hand at one time, the slight differences which we have attempted to define may be noticed.

Two specimens positively identified as the form named the Northern Yellow-throat have been taken at Raleigh by the Brimleys. One was a male secured May 2, 1907, the other a female collected May 18, 1927.

After reviewing the specimens collected in the State for the National Museum in 1939 and 1940, Wetmore has written us: "Breeding birds referred to this form

came from the high area in the west. Two males and a female from 8 miles southwest of Murphy, at 1,450 feet, taken on June 8, 9, and 10, agree with this form, as does a male from 2,200 feet 7 miles west of Franklin, collected July 4, and a male from 4,600 feet on Three Tops Mountain, 2 miles southeast of Creston, July 13. I have also a male sent to me by Dr. J. J. Murray from 3,700 feet at Blowing Rock, shot August 8, 1940. In spring, migrants were obtained at South Mills April 14 and at Roseboro May 4. Fall specimens were taken on the Catawba River near Catawba, September 29, and west of Statesville October 2, 3, and 5. . . .

"It appears that this form nests throughout western North Carolina and that it is State-wide in occurrence in migration."

Burleigh says that the Northern Yellow-throat is a "fairly common" spring and fall migrant at Asheville.

MARYLAND YELLOW-THROAT.

Geothlypis trichas trichas (Linnaeus). [681]

Description. Olive-green; often more or less tinged with brown above; black on sides of head and forehead as in the preceding, but absent, of course, in female. Underparts with the yellow mostly confined to throat, chest, breast, and under tail-coverts. Wing about 3 or 4 mm. (.15 inch) longer than tail. Extreme measurements of 88 Raleigh specimens most probably belong here; length 4.60-5.30; wing 1.87-2.37; spread 6.37-7.13; tail 1.68-2.25.

Range. Breeds from Pennsylvania to Texas and northern Georgia. Winters from North Carolina to Haiti.

Range in North Carolina. Not well understood. We know but little of the range of this form in the State, but probably it is the one found breeding in central North Carolina, including many mountain valleys.

Raleigh specimens have been noted to have the tail noticeably longer than the wings and also to have the yellow on the underparts rather limited, particularly in the females. It usually arrives the latter part of March and leaves in October. Eggs were taken at Raleigh, May 13-July 4, and at Fayetteville, May 16-30 (Kelly). The bird has been occasionally found in winter at Raleigh and Chapel Hill. It is a casual fall migrant on Mount Mitchell, at an altitude of 5,000 to 6,000 feet, where it was found August 20 (1930) to September 20 (1931) by Burleigh.

This bird is slightly smaller and paler than the Northern Yellow-throat, but this distinction is usually difficult to determine without having a bird in the hand. All three of our Yellow-throats may be known by the black mask worn so strikingly by the male bird. They all haunt thickets and the borders of bogs and marshes, where their loud songs may often be heard. Chapman says that near New York City they seem to him to say, *I beseech you, I beseech you, I beseech you.*

The nest of the Yellow-throat is made of coarse grass, leaves, and strips of bark lined with fine grasses and placed in the crotch of a bush near the ground. The eggs are white, spotted with brown and number three to five.

☆ New dates are October 14th (Greensboro) and December records (9) are from Charlotte to the coast. ☆

ATHENS YELLOW-THROAT.

Geothlypis trichas typhicola Burleigh. [681j]

DESCRIPTION. "Similar to *Geothlypis trichas trichas*, but with longer wings and tail, more brownish upperparts, darker flanks, and more extensively yellow underparts." *Burleigh, Proc. Biol. Soc. Wash.*, 47, 21-22, Feb. 9, 1934. In addition, the wings are slightly, if at all, longer than tail.

RANGE. Southeastern Virginia through the Carolinas and Georgia to Alabama.

RANGE IN NORTH CAROLINA. Coastal region, inland limits unknown.

The Athens Yellow-throat was recorded by Burleigh from Beaufort, Columbia, Pine Island, Snead's Ferry, Wilmington, and Swanquarter in the east, and from Asheville and Marion in the mountains. C. S. Brimley took a male at Lake Ellis May 22, 1907.

Wetmore has sent us the following notes:

"This race, an intermediate between *Geothlypis t. ignota* of farther south and *trichas*, is marked by darker, browner coloration of back and flanks, though not as dark as *ignota*. Though definitely an intermediate it seems to occupy a wide enough range from Georgia to southeastern Virginia to warrant recognition. In North Carolina it is found as the breeding bird of the coastal plain, extending back over the eastern section of the Piedmont. Birds from much of this area are not so dark as those from farther south and tend to range a little small, but they are too dark to be considered *trichas*.

"Two males and a female from near Southport, May 15 and 17, are fairly typical in size and color. Of two taken near Roseboro on May 2 and 6, one is fairly typical and the other somewhat light in color. A pair secured 11 miles east of Wadesboro on May 26 are definitely intermediate both in size and color.

"Two males and two females, all immature, taken on Hogan Creek, 7 miles northeast of Reidsville, September 18, 19, and 22, have the size of *trichas* but appear very dark, so that they are allocated as intermediates under this name. More of these birds should be collected in this area in the breeding season to check their identity.

"Other fall specimens were obtained at Engelhard, October 14 and 20, and Morehead City, November 22, 1939."

However, Burleigh says, "This recently described race was found to be the yellow-throat common during the summer months about Asheville, appearing the middle of April and lingering in the fall until the middle of October. Specimens taken included the following: males September 20, 1930, April 18, 1932, and May 20, 1934, and females April 25, 1934, April 28, 1934, and May 5, 1934."

Genus ICTERIA Vieillot.

YELLOW-BREASTED CHAT.

Plate 42, Fig. 14

Icteria virens virens (Linnaeus). [683]

DESCRIPTION. Upperparts, wings, and tail olive-green without markings; throat, breast, and upper belly yellow; lower belly and under tail-coverts white; lores and bill black; superciliary stripe and lower eye-ring white. Length 6.75-7.50; wing 2.90-3.20; spread 9.25-10.12; tail 2.90-3.35.

RANGE. Breeds from Minnesota and New York to southern Florida. Winters in Mexico and Central America.

RANGE IN NORTH CAROLINA. Common summer visitor at least from Raleigh westward, including some mountainsides up to 5,000 feet.

This, our largest representative of the warbler family, is an abundant summer visitor in central and western North Carolina, occurring almost everywhere in sunny thickets and among low second-growth trees. We have dates of its arrival in spring as early as April 16, and of its appearance in autumn as late as September 20, at Chapel Hill (Odum), and October 1, at Weaverville (Cairns). Eggs have been found from May 11 to July 2. It appears to be absent in summer from the eastern part of the State.

This is a noisy, though shy bird, and is also one of the few species that sing at night as well as in the daytime. When singing, it often flies upward with flapping wings and jerking tail, finally finishing its performance by a quick dive into a neighboring thicket. It has a great variety of whistles and clucks, some of which are almost unbirdlike. The eggs, three or four in number, have a glossy white surface, marked with specks and spots of brown. The nest is placed among briars or in a small bush at a height of one to five feet from the ground and is constructed of grass or of weed stems, lined with fine grass or roots.

☆ East of Raleigh new records are from Wilmington (March 9th through June 4th), Mount Olive (April 28th through May 10th), Beaufort (May 24th). Winter records are from Raleigh, Wilmington, Fayetteville, Henderson and Chapel Hill. ☆

Genus **WILSONIA** Bonaparte.

HOODED WARBLER.

Plate 42, Fig. 6

Wilsonia citrina (Boddaert). [684]

DESCRIPTION. Bright yellow-olive; bright yellow below; male with upper breast, throat, and neck all around, black, enclosing a broad yellow mask on sides of head and on forehead; female with the black reduced or absent. Length 5.25-5.85; wing 2.30-2.75; spread 7.75-8.75; tail 2.20-2.50.

RANGE. Breeds from Michigan and central New York to the Gulf Coast. Winters from southern Mexico to Panama.

RANGE IN NORTH CAROLINA. Whole State in summer, ranging in the mountains sometimes to 5,000 feet elevation.

The Hooded Warbler probably arrives in the southern coastal country of North Carolina during the latter half of March; it has been noted at Raleigh by April 5. At Chapel Hill it has been found as late as September 28. It frequents shady woods, but is most abundant in the low woodlands of the eastern part of the State, where it seems to breed chiefly in reed thickets.

The nest is usually built at a height of two to four feet from the ground, in the top of a cluster of reeds or in a low bush, and is composed of reed-leaves, bark strips, pine needles, and similar materials, lined with fine grass and roots. The eggs are three or four in number, laid in May or occasionally in June, and have

a white ground color, spotted and speckled, chiefly near the larger end, with brown and gray. Size .70 x .55.

This beautiful bird is another species that habitually wags its tail, and it also has a habit, shared by some other warblers, as the Redstart and Magnolia Warbler, of opening and shutting the tail, which alternately exhibits and hides the white blotches on the outer tail-feathers.

In common with the other members of the genus, it has the bill broad and depressed at the base, and this character, added to the fact that it is provided with bristles at the gape, gives force to the name "Fly-catching Warbler," by which it is sometimes called.

☆ A late date is October 9th (Elkin) and a winter date is December 28th (Wilmington). ☆

WILSON'S WARBLER.

Plate 42, Fig. 7

Wilsonia pusilla pusilla (Wilson). [685]

DESCRIPTION. Clear yellow-olive; forehead, sides of head and whole underparts bright yellow; crown black in adult male; the black less extensive or even absent in females and immature birds. Length 4.75-5.00; wing 2.20-2.25; spread about 6.87; tail 1.90-2.08.

RANGE. Breeds in the southern Canadian Provinces and in northern New England. Winters in Mexico and Central America.

RANGE IN NORTH CAROLINA. Scarce transient.

The male of this exquisite species easily may be recognized by its distinctive black cap and its clear yellow forehead, cheeks, and underparts. It is one of the warblers that catches insects on the wing as does a flycatcher. It may be looked for in company with other migrating warblers. Unfortunately, it does not appear to be a very common bird in our State. H. H. and C. S. Brimley have found it four times at Raleigh, all between May 11 and 17. It was once seen at Durham in April, and in Buncombe County twice in May and twice in September. Brown found it at Salisbury, May 8, 1927, and Breckenridge recorded it at Chapel Hill, September 23, 1933. Burleigh reports it in Buncombe in August and October.

☆ Ten new records are from 7 localities, from Raleigh and Henderson westward. Winter records are three from Chapel Hill. ☆

CANADA WARBLER.

Plate 43, Fig. 4, and Plate I

Wilsonia canadensis (Linnaeus). [686]

DESCRIPTION. Upperparts ashy-gray; forehead spotted with black; lores black; a superciliary stripe and orbital ring and entire underparts, except white under tail-coverts, yellow; a necklace of black streaks across the breast, fainter or wanting in females and immature birds. Length 5.00-5.75; wing 2.50-2.65; tail 2.20-2.40.

RANGE. Breeds in Canada and south to Michigan and along the Alleghany Mountains to Georgia. Winters chiefly south of the Equator.

RANGE IN NORTH CAROLINA. Summer resident in mountains, transient elsewhere.

The Canada Warbler is much like the Wilson's Warbler and its manner of capturing insects is very similar to that of this close relative. In its daily movements it often shows a preference for the lower growth, especially in damp woodlands. The male, with its necklace of black dots, is a most charming little bird.

There are many records of its occurrence in central North Carolina, especially during the month of May. It has been found breeding at various places in the mountains, at altitudes, according to Burleigh, above 4,200 feet. At Asheville it is common only as a spring and fall migrant, although Pearson found it there in July, 1902. In autumn it appears to be more common in August and September and has been noted in Buncombe County as late as October 10.

The nest is placed on the ground in underbrush, in such situations as the side of a log or at the foot of a bush, and is composed of dry weeds and fine roots, with a lining of hair. The eggs are four or five in number, white or buffy, speckled or spotted with brown and gray, chiefly around the larger end. Size .68 x .51.

Genus **SETOPHAGA** Swainson.

AMERICAN REDSTART.

Plate 43, Fig. 3, and Plate I

Setophaga ruticilla (Linnaeus). [687]

DESCRIPTION. Male: black; the sides of breast and large blotches on wings and tail, orange-red; belly white; female: olive with the red replaced by yellow; young males: similar to females but usually with more or less traces of black. Length 4.95-5.50; wing 2.25-2.65; spread 7.75-8.13; tail 2.08-2.35.

RANGE. Breeds from British Columbia and Newfoundland along the mountains to northern Georgia. Winters from the West Indies to northern South America.

RANGE IN NORTH CAROLINA. Summer resident in central portion, and in the mountains up to 2,300 feet elevation. Mostly a transient in eastern section.

The American Redstart, though apparently not found in summer along the coast, is a common summer visitor in central North Carolina, arriving from the south early in April. In autumn it has been noted at Chapel Hill and Washington as late as October 11. It frequents wooded streams particularly and often builds its nest in birches and other lowland growth. The eggs are four, usually laid about the middle of May, and are white in ground color, speckled and spotted with various shades of brown and gray, chiefly around the larger end. Size .63 x .48.

The nest is a compact, rather deep, cup-shaped structure, made of shreds of plant fibers held together with spider webs and lined with fine grass and hair. Usually it is placed in a fork of a bush or small tree, at a height of five to twenty feet from the ground. The bird has been found nesting as far east as Red Springs, Robeson County (Murray, *The Chat*, March, 1937).

The male Redstart almost invariably spreads his tail when flying, and thus exhibits the conspicuous orange patches that it bears.

At Raleigh many of the breeding males are found to be in immature plumage with little or no black, which fact is claimed by W. W. Cooke to be an indication of the species being near the limit of its breeding range.

Family **PLOCEIDAE.** Weaver Finches.

Genus **PASSER** Brisson.

ENGLISH SPARROW.

Passer domesticus domesticus (Linnaeus). [688.2]

DESCRIPTION. Adult male: crown gray, bordered from the eye backward and on the nape by chestnut; lesser wing-coverts chestnut, middle coverts tipped with white; back streaked with black and chestnut, rump ashy; middle of throat and breast black; sides of the throat white; belly whitish. Adult female: head and rump grayish brown; back streaked with black and deep ochraceous-buff; underparts dirty whitish, the breast and sides washed with pale grayish-brown. Length 6.33; wing 3.01; tail 2.30; bill .48. (*Chapman.*)

RANGE. Distributed generally throughout much of North America.

RANGE IN NORTH CAROLINA. Virtually the whole State, especially in towns and villages.

The one representative of this family in North Carolina is the English Sparrow, more correctly named the European House Sparrow, first introduced into North America in 1850. It is an abundant bird in the more thickly settled parts of the State, and, so far as we are aware, first appeared at Raleigh about 1879. At Blowing Rock it was not seen until 1907. The species seemed to reach its maximum population some twenty years ago. Today, while a common bird, it is not seen in such great numbers as formerly.

Although considered by many to be a nuisance, the English Sparrow has some redeeming qualities. It devours cabbage worms, the Harlequin cabbage bug, and many insects, some of which it will capture by springing several feet into the air and taking them on the wing. The nest, built among the branches of trees or placed in any convenient hole or crevice about a building, is a large, untidy structure of grass, weed stems, or other available material, and is well lined with feathers. Three or four broods are raised in a season. The eggs number from four to six and are variously spotted.

The laws of the State do not protect this bird; and many look upon it with disfavor as it is believed to drive our native birds out of the towns into the country, where they perhaps more readily fall a prey to their natural enemies. It sometimes feeds on young peas and other vegetables.

Family **ICTERIDAE.** Meadowlarks, Blackbirds, and Troupials.

These are medium-sized birds with conical bills; the mouth turns down at the corners; and in most of the species the bill is as long as the head or longer. This distinguishes the majority of them from the finches. In general, they usually show a resemblance either to the starlings or the Old World orioles, but the small first primary is always wanting. In English ornithological works, the members of the family are often called starlings, as Red-winged Starling, or Meadow Starling, instead of Red-winged Blackbird and Meadow-lark.

Genus **DOLICHONYX** Swainson.

BOBOLINK: RICEBIRD: REEDBIRD: ORTOLAN.

Plate 44, Fig. 10

Dolichonyx oryzivorus (Linnaeus). [494]

Description. Adult male with top and sides of head and entire underparts black, the feathers tipped with whitish, which wears off as the season advances, as is also the case with the Red-wing, Starling, and Rusty Blackbird; back of head with a large creamy-white patch, scapulars, upper tail-coverts and lower back dirty whitish, rest of back streaked with black and creamy-buff. Females and fall birds: buffy-olive streaked above with black, somewhat paler beneath, unstreaked. The seasonal change in all such cases is due to a double moult; that is, a second moult in spring, besides the usual and regular fall moult. Length 6.30-7.60; wing 3.70-4.00; spread 10.56-12.56; tail 2.60-2.90.

Range. Breeds from Alberta and Nova Scotia south to California and West Virginia. Winters in central South America.

Range in North Carolina. Whole State during the migrations, mid-April to late May, and mid-August to mid-October.

Many members of the North Carolina Bird Club drove out of Raleigh on the morning of April 29, 1939, to look for birds. While passing a field of ripening oats, they paused to listen to the flood of music that came from a flock of at least two hundred male Bobolinks. Farther on others were seen feeding in a field of crimson clover. These birds had paused briefly while migrating northward from their winter vacation well south of the Equator. Soon they would be building their nests in the grass of northern meadowlands.

During this spring migration flocks of males reach us a week or two before the duller-colored females arrive. At times they are accompanied by blackbirds. When in autumn Bobolinks pass through the State on their way to a far southern clime, the males have lost their bright plumage and closely resemble the females and the young of the year. Although beloved by bird students of the North, there was a long period in our history when they were heartily detested by planters from the lower Cape Fear River to south Georgia. The reason for this may be made clear to the bird student of today who chances to read accounts of some of the things that were happening in this territory in bygone years.

At one time an industry along the lower reaches of the rivers in the South Atlantic States was the cultivation of rice on a large scale. Various birds fed on the rice when the grains were in the "milk," but the one that did more injury than all the rest combined was the Bobolink from the North, called "Reedbird" along the Chesapeake and "Ricebird" in the Carolinas.

The following is a digest of an account written about fifty-five years ago by Captain Hazard, of Annandale, S. C.: "During the nights of August 21 to 24, millions of bobolinks annually make their appearance and settle in the rice fields. From then until September 25 our every effort is to save the crop. Men, boys, and women, with guns and ammunition, are posted on every four or five acres and shoot daily an average of one quart of powder to the gun. This firing commences at first dawn and is kept up till sunset. After all this expense and trouble our loss of rice per acre seldom falls under five bushels, and sometimes the destruction is so complete it does not pay to cut what is left of the crop."

In North Carolina there were sizable rice plantations in those days along the lower Cape Fear River, but the planting of rice for commercial purposes gradually passed away. By 1926 only two planters were left who raised such crops. One of these operated the Oaks Plantation, ten miles below Wilmington. E. R. Kalmbach, of the United States Department of Agriculture, visited the area in September of that year and by experiment found that an acetylene gun and noise of one twenty-two caliber rifle were sufficient to keep the hungry Bobolinks and blackbirds on the move in this modest-sized rice field.

Fig. 95. Bobolink.

In 1941 the statistician of the North Carolina Department of Agriculture advised us that not more than 80 or 100 acres in the State are now planted in rice, and that no complaints of damage by Bobolinks have been reported in late years. The great rice industry of the South Atlantic coastal country may be said no longer to exist.

Although the Bobolink breeds chiefly in the northern and northwestern States, it has been detected nesting in Louisiana and suspected of breeding in Florida; in this connection, it may be interesting to note that Seeman reports seeing two males at Durham on June 17 and one on June 28, 1903.

Genus **STURNELLA** Vieillot.

EASTERN MEADOWLARK: FIELD LARK.

Plates 28 and 44, Fig. 11

Sturnella magna magna (Linnaeus). [501]

Description. Brownish above streaked with black; a whitish stripe down middle of crown; underparts yellow, the belly whitish; breast with a large black crescent; outer tail-feathers marked with white. Length 8.60-10.60; wing 4.05-5.05; spread 14.00-16.50; tail 2.30-3.15.

Range. Breeds from Minnesota to Quebec, south to Texas and North Carolina; winters from the Potomac and Ohio valleys to the Gulf States.

Range in North Carolina. Common winter visitor; breeds in limited numbers.

These brownish-backed, yellow-breasted birds are common winter visitors in all portions of the State, feeding in open fields, pastures, and lowground meadows. Some arrive from the north about the middle of October and usually depart in April; others appear to be permanent residents although summer records are few and scattering. Cairns found but one nest in Buncombe County in five years collecting. Joseph Armfield reports finding one or more nests at Greensboro in Guilford County; Pearson found it a regular summer resident there, but never located a nest. Craighill says they are abundant around Rocky Mount at all seasons, and W. B. McIlwaine reports them breeding commonly about Charlotte. E. E. Brown says they breed in the Salisbury region.

This is one of the most insectivorous birds of this family. Instead of being persecuted as a game bird, it has always deserved the fullest protection because of its value as a consumer of insects injurious to the farmer's crops. As a destroyer of sprouting corn, the depredations it commits are grossly exaggerated. It is now protected at all times under Federal regulations. The nest, placed on the ground under a tuft of grass, is compactly made of coarse grass, lined with finer materials. The eggs, four to six in number, are of a pure white ground color and more or less thickly spotted or dotted with reddish brown or purplish. Size 1.10 x .80. May and June are the nesting months.

The Meadowlark is social in its habits, being found in flocks when not engaged in rearing its young. Its flight is very characteristic, as it proceeds by alternately flapping its wings and sailing. When rising from the ground the tail is spread, revealing the white outer tail-feathers. The clear modulated whistle of the Meadowlark floating from fence rail or treetop is one of the sweetest bird songs that comes to our ears in spring or early summer.

☆ New records do not resolve the distinct range of this and the Southern Meadowlark. It is assumed that the nesting area of this subspecies is from the geographical "Fall Line" and westward. New nesting records are from Yadkin and Henderson counties. ☆

SOUTHERN MEADOWLARK.

Sturnella magna argutula Bangs. [501c]

Description. Similar to the Eastern Meadowlark, but size smaller, and colors darker, particularly on the upperparts, including tail and wings, the dark central areas of the

feathers being much greater in extent, and the light edges less. The yellow of the underparts much more intense. Wing 4.00-4.13; tail 3.00.

RANGE. From eastern North Carolina and Illinois to the Gulf Coast.

RANGE IN NORTH CAROLINA. Coastal region in summer; possibly permanent resident, west at least to Wake and Cabarrus Counties.

Near Currituck Lighthouse on May 20, 1932, Burleigh took a male meadowlark that upon close inspection proved to belong to this smaller, darker-colored race. It seems very reasonable to suppose, therefore, that all the meadowlarks found along our eastern seaboard in summer are referable to this subspecies. E. R. Greene says they breed regularly in Hyde County; we know that at Cape Hatteras and Pea Island they are common residents in summer. Birds found by Grey and Pearson on May 5, 1939, at Southport, and those taken by Grey in Wake County, May 29, and in Cabarrus County, June 7, 1939, all were Southern Meadowlarks. Some careful students of bird music claim that there is a distinct difference between the songs of these two forms of the meadowlark found in North Carolina.

Genus **AGELAIUS** Vieillot.

EASTERN RED-WING: RED-WINGED BLACKBIRD: POMPALILLY.

Plate 44, Fig. 9

Agelaius phoeniceus phoeniceus (Linnaeus). [498]

DESCRIPTION. Male: black; wing-covert scarlet with buffy edges; the black feathers in winter edged with whitish which wears off as the season advances. Females: smaller, much streaked above and beneath. Length 7.25-9.40; wing 3.75-4.80; spread 11.93-15.50; tail 2.75-3.80.

RANGE. Breeds from Quebec to the Gulf States; winters south of the Ohio and Delaware Valleys.

RANGE IN NORTH CAROLINA. Summer visitor in the mountains, resident elsewhere.

The Red-wing is the best-known member of the blackbird family in North Carolina. It breeds in marshes throughout the State. In the mountain region it appears to be only a summer visitor, arriving in March or earlier, but in the rest of the State it is found at all seasons. The flocks seen in winter seem to be composed almost entirely of females. At Roper, one was shot November 19, 1932, that bore a metal band placed on it at Wyncote, Pennsylvania, August 1, 1932. In February and March their numbers are greatly augmented by the arrival of migrants bound northward. At this season they feed to a great extent in the fields of newly planted grain, probably doing some damage by eating the sprouting seeds and some good by destroying cutworms and other noxious insects.

After March, their numbers having been reduced to the resident population, they confine themselves pretty closely to the lowgrounds, where they nest in reeds, cattails, or bushes growing in marshes. The nests are composed of coarse marsh grasses, woven together into deep cup-shaped structures. In Cumberland County, Kelly has found their eggs from May 10 to June 10. At Greensboro, Armfield discovered eggs as late as June 17. Usually these are four in number. They are pale bluish, marked with dots and lines that look as if they had been made with pen and ink. Size 1.00 x .75. In the Wilmington region the bird is sometimes called the "Pompalilly."

Speaking of it, Coues wrote: "In the breeding season the 'creaking-chorus' makes an indescribable medley."

☆ There are December and January records to add from Asheville (1), and the Smoky Mountains (6). ☆

☆ Genus **XANTHOCEPHALUS** Bonaparte.

YELLOW-HEADED BLACKBIRD.

Plate 44, Fig. 12

Xanthocephalus xanthocephalus Bonaparte. [497]

DESCRIPTION. Adult male has orange yellow head, neck, throat, and breast; with black about the eye and chin; with a white patch on outer wing coverts; rest of plumage black. The plumage of the female is mostly grayish brown except dull yellowish or whitish on forehead, line over eye, sides of head, on throat and upper part of breast. Length 9.00-11.00; wing 5.50; tail 4.10.

RANGE. Breeds from central Mexico, Lower California, Arizona north to southern British Columbia, southern Mackenzie, Keewatin, and Minnesota eastward to Wiscansin, Iowa, and Indiana. Winter range includes southwestern California, Arizona, southeastern Louisiana, and south into Mexico. Accidental in eastern localities from Quebec, Ontario, south to South Caralina, Florida, and Cuba.

RANGE IN NORTH CAROLINA. Of accidental occurrence.

Our records of this western species have been from three localities. On August 3, 1948 a male was seen flying with a flock of Redwings across a field near Wrightsville Sound, by Edna Appleberry, Polly Mebane, and Mary Baker. Another male was seen in the same area on April 9, 1949, by Appleberry. The next record of this species was from the Lake Mattamuskeet Refuge about a mile from New Holland Post Office. Here R. L. Wolff on January 11, 1952 saw a female feeding among about 100 Redwings and 60 Cowbirds in the barnyard near a corncrib at Boomer's Farm. The next record was from Raleigh when on August 15, 1952 a male in second winter plumage was taken out of a dove trap, by T. L. Quay and W. A. Goodson. ☆

Genus **ICTERUS** Brisson.

ORCHARD ORIOLE.

Plate 44, Fig. 14

Icterus spurius (Linnaeus). [506]

DESCRIPTION. Adult male: black; the rump, bend of the wing, and underparts from breast down, deep chestnut; wings with two light-colored bars. Female: yellowish-olive above; light olive-yellow beneath; wings with two white wing bars. Immature male: like female but with the throat black, and often with other traces of the black and chestnut markings of the adult. Length 6.65-7.50; wing 2.85-3.45; spread 9.25-10.63; tail 2.65-3.00.

RANGE. Breeds from southern Ontario to the Gulf Coast. Winters from southern Mexico to South America.

RANGE IN NORTH CAROLINA. Summer visitor in the eastern and central sections and in some of the mountain valleys.

The name "oriole" means golden, and long ago was applied to certain European songbirds because of the brilliant, orange coloration in their plumage. The genus *Icterus* is distinctly American as all of its members are found on this side of the Atlantic. Two species of this genus occur in North Carolina, one of which is the well-beloved Orchard Oriole.

Sometimes this bird is incorrectly called "Baltimore Oriole" by people not familiar with that gorgeous feathered creature which in his plumage carries aloft the colors of Lord Baltimore of pioneer days.

Although a summer resident in a great many sections throughout the State, the Orchard Oriole is particularly abundant in the low country of the coastal region. For instance, hundreds of them are to be found in Hyde County around the shores of Mattamuskeet Lake. It arrives from its winter home in Central America late in April; and after spending about four months in courtship and rearing its young, it shakes the sand of North Carolina off its feet and again departs for the tropics. Our latest record for it in summer is August 22 at Raleigh.

As its name indicates, it prefers orchards and groves. Like many other birds, this oriole is greatly attracted to mulberry trees, the fruit of which it enjoys in common with tanagers, catbirds, waxwings, and many others. Its nest is a bag-shaped structure, woven of green grass which later turns yellow, giving it a very characteristic appearance. Sometimes it is lined with soft materials, but more often, perhaps, this special lining it omitted. The eggs, usually five in number, are laid in May or June. They have a bluish ground color, marked with spots, specks, and irregular lines of various shades of brown. Size .78 x .56. The nesting site is usually chosen among the terminal twigs of small shade or orchard trees, but not infrequently a willow or ironwood growing near a stream is selected. The height from the ground at which seven nests at Raleigh were built ranged from seven to twenty feet. This bird is almost wholly insectivorous in its diet, and, as it is also a very melodious singer, it is well deserving of human gratitude.

☆ An earlier arrival date is for Wilmington (March 4th), and late departure dates are Wilmington (October 4th), Raleigh (October 5th), and Elkin (September 27th). Winter records are for Mount Olive (December 19th, 26th and 30th), Greenville (January 1st) and Henderson (February 11th and 28th). ☆

BALTIMORE ORIOLE.

Plate 44, Fig. 13

Icterus galbula (Linnaeus). [507]

DESCRIPTION. Whole head, neck, and upper back, black; underparts, posterior to throat, lower back, and lesser wing-coverts, deep orange; wings mostly black; tail black and orange. Female: duller orange, the head and back mottled with black; wings with white wing bars. Length 7.00-8.15; wing 3.50-3.90; spread 11.00-11.63 (of three specimens); tail 2.85-3.35.

RANGE. Breeds from Alberta to Nova Scotia and south to Texas and northern Georgia. Winters from southern Mexico to South America.

RANGE IN NORTH CAROLINA. Summer visitor in the mountains, transient in rest of State.

The male Baltimore Oriole, with black head and wings and golden body, is one of our most strikingly colored birds. It appears only as a migrant in the State, except in the mountains where it is not an uncommon summer resident west of the Blue Ridge. At Raleigh it has been observed in late April; at Greensboro and Chapel Hill by May 4; and in the fall it has been seen at Raleigh from August 31 to September 17. A pair was seen by H. H. Brimley in Jones County, June 8, 1924.

This species builds a deep purse-shaped nest, woven from vegetable or other fibers and attached by the rim to a fork at the end of a long, drooping limb of a large tree. The nest is lined with any soft material readily found in the neighborhood. People who are so fortunate as to have Baltimore Orioles living about their place often amuse themselves by putting out pieces of yarn, two or three feet in length, and watching the orioles carry these to their favorite limb to be used in nest-building. In the work of nest construction the male contributes very little material assistance. It is the female who plans and builds the deep, swinging cradle that will hold her eggs and young. Occasionally her mate may bring a string or a fragment of decaying bark, but he does not attempt to weave these materials into place. Mostly he chatters, displays his fine orange and black feathers, and jumps about, thus no doubt helping much to produce "atmosphere" for the pretty act of avian life that is being so seriously played around the big tree in the garden.

Like the preceding species, this fine bird is a good singer and an energetic devourer of insects. The eggs, usually five in number, are unevenly spotted and streaked with fine lines of black and brown.

☆ Winter records to add are from Wilmington, Mount Olive, Rocky Mount, Raleigh, Chapel Hill and Greensboro. ☆

Genus **EUPHAGUS** Cassin.

RUSTY BLACKBIRD.

Plate 44, Fig. 6

Euphagus carolinus (Müller). [509]

Description. Adult male: uniform glossy-black with a faint bluish gloss on head, and bluish-green elsewhere. In winter these colors largely obscured by light tips to the feathers, which wear off as the season advances. Female: dark brownish-slate above, becoming more plumbeous beneath, the colors similarly obscured in winter as in the male, for the same reason. Length 8.50-9.65; wing 4.15-4.85; spread 13.63-14.75; tail 3.16-3.95.

Range. Breeds from Alaska to New England. Winters mainly in the southeastern States.

Range in North Carolina. Spring and fall transient, wintering more or less irregularly from Chapel Hill eastward.

The Rusty Blackbird occurs in North Carolina mainly when migrating in early spring and late fall. A certain number spend the winter in the State. Among the many places they have been noted may be mentioned: New Bern in early January, 1885 (H. H. Brimley); Raleigh, October 17 to April 26; Weaverville, Buncombe County, from February 2 to May 2 (Cairns); Chapel Hill, October 17 to April 22; and Cape Hatteras, October 12 to November 1.

JAYS, ORIOLES, TANAGERS, ETC.

1. CANADA JAY
2. BLUE JAY
3. FLORIDA JAY
4. BRONZED GRACKLE, MALE
5. PURPLE GRACKLE, MALE
6. RUSTY BLACKBIRD, a. MALE IN SPRING; b. FEMALE
7. COWBIRD, a MALE; b. FEMALE
8. STARLING, a. MALE IN BREEDING PLUMAGE; b. MALE IN WINTER
9. EASTERN RED-WING, a. MALE IN BREEDING PLUMAGE; b. FEMALE
10. BOBOLINK, a. MALE IN BREEDING PLUMAGE; b. FEMALE
11. MEADOWLARK
12. YELLOW-HEADED BLACKBIRD, a. MALE; b. FEMALE
13. BALTIMORE ORIOLE, a. MALE; b. FEMALE
14. ORCHARD ORIOLE, a. ADULT MALE IN BREEDING PLUMAGE; b. FIRST-YEAR MALE; c. FEMALE
15. WESTERN TANAGER, a. MALE IN BREEDING PLUMAGE; b. FEMALE
16. SCARLET TANAGER, a. MALE IN BREEDING PLUMAGE; b. MALE CHANGING INTO WINTER PLUMAGE; c. FEMALE
17. SUMMER TANAGER, a. MALE IN BREEDING PLUMAGE; b. FEMALE

JAYS, BLACKBIRDS, ORIOLES, TANAGERS, *Etc.*

The Rusty Blackbird is not a particularly common bird in the State, never occurring in really large flocks, but usually seen in companies of not more than fifteen or twenty individuals. They feed on the ground in fields or bushy swamps or along the edge of fresh-water marshes. Their usual call notes are much like those of the Red-wing and the two birds are about the same size. In autumn they sometimes frequent the lowgrounds to feed on frost grapes. At all seasons they seem much easier to approach than other blackbirds.

☆ New winter records are from Greensboro, Statesville and Highlands. ☆

BREWER'S BLACKBIRD.

Euphagus cyanocephalus (Wagler). [510]

Description. Adult male: greenish-black; the head and neck violet-black, the colors slightly obscured in winter plumage by brown tips to the feathers which wear off as the season advances. Adult female: uniform brownish-slate, brown predominating anteriorly, and slate posteriorly. Length 8.75-10.25; wing 4.65-5.25; tail 3.85-4.50.

Range. Mostly the Great Plains and westward, casual or accidental farther east.

Range in North Carolina. Has been found as a migrant.

The first record of a Brewer's Blackbird in North Carolina was made by Burleigh when he collected a specimen near Asheville on November 25, 1930. At the time he regarded this individual as a rare straggler from the West. However, on April 6, and again on November 16 and December 8, 1931, he saw others, sometimes in flocks numbering as many as ten. This experience was repeated the third year on February 25, and on April 12, 1932. Burleigh thus came to the very natural conclusion that this species must be a more or less regular spring and autumn migrant in Buncombe County. (*The Wilson Bulletin*, 1933, pp. 111-113.) The Brewer's Blackbird is similar to, but somwhat larger than, the better-known Rusty Blackbird.

Genus **CASSIDIX** Lesson.

BOAT-TAILED GRACKLE.

Cassidix mexicanus major (Vieillot). [513]

Description. Male: iridescent green and blue. Female: dull, dusky brown, lighter beneath, and very much smaller. Male: length 15.00-17.00; wing 7.00-7.50; tail 6.80-7.55; female: length 11.50-13.00; wing 5.55-5.75; tail 5.10-5.55.

Range. South Atlantic and Gulf Coasts from Virginia to Texas.

Range in North Carolina. Along the coast but not far from salt water.

The Boat-tailed Grackle, commonly known in the south Atlantic States as "Jackdaw," inhabits the vicinity of our coast where it may be seen searching for food on sheltered beaches, oyster bars, and in the salt marshes. Again we hear the harsh notes or the sound of pounding wings of the male, as the birds fly low overhead in small groups.

The male is very handsome, his glossy bluish-black plumage imparting a wealth of purplish reflections. It is a large bird; in fact, its length is equal to

that of the common Fish Crow, which in the main inhabits the same countryside. The two birds often meet while raiding a corn field in spring looking for sprouting grains, or later in summer when the maturing ear can furnish a feast it is not well for them to overlook. Or these birds may meet while seeking marine worms and small crabs along the same mud flat when the tide has ebbed.

The big grackle is an imposing figure as he strides pompously about among the various light-brown females, which are either real or prospective members of his seraglio. Like many other large male birds that are more brilliantly colored than the female, the Jackdaw is decidedly polygamous. These grackles nest in small colonies, sometimes in bushes in a marsh, at other times in shade trees of towns, and in North Carolina so far as we have observed, only in the vicinity of salt water. For many years there have been such breeding colonies in the towns of Beaufort, Plymouth, Southport, Wrightsville, and elsewhere.

The nests are made of heavy grasses more or less woven together and with the upper ends wrapped around the twigs or weed stems that support them. The cup of the nest may be from three to five inches deep. This unusual depth, of course, prevents the eggs or young from being rolled out when summer gales cause the reeds or treetops to toss gaily. Although the nests are usually rather bulky affairs and often give the impression of being loosely built, they are in reality substantial structures. The reason for this lies in the fact that between the inner and outer layers of building material there is placed a layer of mud or decaying vegetation, which upon becoming dry forms a frame work of pronounced rigidity.

The breeding period is during April, May, and sometimes extending into the month of June. The eggs have a light olive ground color and are marked with irregular blotches of brown and black. They are about 1.25 inches in length. The young are fed on such food as is readily available in the neighborhood, like worms, fragments of shrimp, snails, small fish, and also mulberries when these are readily obtainable. This is one of the species whose nests at times unfortunately are infested with parasites which, if they do not bring death to the young crowded in their swaying cradle, certainly add nothing to the comfort of the household.

Genus **QUISCALUS** Vieillot.

PURPLE GRACKLE.

Plate 44, Fig. 5

Quiscalus quiscula stonei Chapman. [511]

DESCRIPTION. Head bluish or greenish to bronze purple-bronze; back purple-bronze. Female: duller. Length 10.75-12.75; wing 4.85-5.75; spread, male 17.00-17.63, female 15.75-16.31; tail 4.06-5.45.

RANGE. Atlantic Coast from Connecticut to Virginia and farther south inland.

RANGE IN NORTH CAROLINA. Largely a transient, but breeding sporadically at various places.

The Purple Grackle, one of the crow blackbirds, is easily distinguished from the Rusty Blackbird by its larger size, longer tail, and hoarse notes. It is not an uncommon bird in most parts of the State during portions of February, March, October, and November, when it is migrating. As a breeding bird it is quite

local, though known to breed at Greensboro on the grounds of the Greensboro Female College, also at Statesville, and in Asheville. Those reported by Craighill as breeding at Rocky Mount may be the Purple or possibly the Florida Grackle.

A male taken in the Dismal Swamp, April 18, 1939, was identified by Wetmore as a *stonei.*

The nest of *Quiscalus* is usually placed in a pine or other coniferous tree and is often a very bulky structure. Twigs and grass are the materials most commonly used in its construction. Frequently it is situated at a considerable height from the ground, but where suitable trees are not accessible it will be placed in bushes or even in crevices in the sides of the nest of the Osprey or in an old Flicker's hole. The eggs are four to six in number, laid in our latitude usually in April or early May. They have a greenish-white or rusty-brown ground color, over which are scattered many spots and scratches of black or chocolate. Size 1.18 x .84.

Purple Grackles are eminently gregarious at all seasons. In spring they often feed with other blackbirds on newly sown grainfields, and later will gather in the tops of tall pines, flying from one to another, and apparently feeding on pine seeds. Usually it nests in colonies of from ten to twenty or more pairs.

☆ New nesting records are from Tryon, Shelby, Wilmington and Beaufort County. ☆

FLORIDA GRACKLE.

Quiscalus quiscula quiscula Linnaeus. [511a]

Description. Head dark violet; back and sides bottle-green; averaging smaller than the others, but with longer and more slender bill. Length 10.40-12.00; wing 5.20-5.40; tail 4.60-5.20.

Range. Atlantic Coast from Florida to North Carolina, and also along the Gulf Coast to Mississippi or farther.

Range in North Carolina. Inhabits the coastal country sparingly.

The habits of this subspecies are substantially the same as those of the Purple Grackle. "Found to breed as far north as Albemarle Sound and well distributed in this stretch of coast. Two taken in 1932, a male at Kitty Hawk, May 23, and a female at Lake Mattamuskeet, May 25, were clearly referable to this form."—Burleigh. (*The Auk,* October, 1937, p. 459.) These are undoubtedly the grackles recorded at Lake Ellis, May 8-18, 1906, late May, 1907, 1908 (C. S. Brimley), and June 19, 1909 (Philipp, *The Auk,* July, 1910, p. 319.) Three were seen at Lake Waccamaw by Pearson, May 6, 1939. In Bladen County, Kelly and Pearce have found them breeding from May 6 to 31. H. H. Brimley and Adickes found nests at Orton Pond, May 13-24, 1913.

Ridgway's Purple Grackle (*Q. q. ridgwayi,* Oberholser). Probably a hybrid between the Bronzed and the Purple Grackles. Head and neck bluish or greenish or bronze-purple; back and sides brassy-green; rump bronze. Size about the same as the preceeding. One taken at Raleigh, November, 1900.

BRONZED GRACKLE.

Plate 44, Fig. 4

Quiscalus quiscula versicolor Vieillot. [511b]

DESCRIPTION. Head and neck steel-blue to bottle-green, its color always sharply defined against the perfectly uniform bronze of the back. Female: similar but slightly duller. Length 11.66-13.00; wing 5.16-5.85; tail 4.50-5.70.

RANGE. Breeds from southern Canada to New York and west of the Alleghany Mountains to southwest Georgia. Winters mainly from Ohio Valley to Texas.

RANGE IN NORTH CAROLINA. Western and central portions during the migrations.

So far as we are aware, the Bronzed Grackle appears in this State only as an uncommon migrant. Specimens have been taken at Raleigh in November, December, February, and March. Twelve in all were secured during the ten years ending November 20, 1912. None recorded here during the past twenty-eight years.

At Weaverville, Buncombe County, birds were killed by Cairns from March 10 to 30, 1890 (five specimens secured in all). Miss M. A. Boggs reports a flock of twenty which were present near Waynesville during the first two weeks of November, 1924. Burleigh reports it a common migrant at Asheville, "flocks of four or five to as many as forty birds being seen in the more open valleys the latter part of February and the first half of March and again throughout November and early December."

This bird has the same habits as its near relatives of the Purple Grackle group with which, in fact, it is at times found associated in this State.

Genus MOLOTHRUS Swainson.

EASTERN COWBIRD.

Plate 44, Fig. 7

Molothrus ater ater (Boddaert). [495]

DESCRIPTION. Male: glossy black with the head and neck brown. Female: smaller, plain brownish-gray, paler on chin and throat. Length 6.75-7.80; wing 3.75-4.40; spread, male: 12.87-13.75; female: 12.00-12.37; tail 2.40-3.15.

RANGE Breeds regularly from southern Canada to central Texas and central Virginia. Winters from Ohio and Potomac valleys southward to the Gulf.

RANGE IN NORTH CAROLINA. Chiefly known as an irregular migrant.

Cowbirds are social outcasts, for as a rule, other birds do not associate with them. The males are without song and the sounds they make in spring are described by Chapman as "gutteral bubblings produced with apparently nauseous effort." They are not known to be constant to any mate and when the urge to lay an egg comes to the female, she slips through the bushes until she finds the nest of some smaller bird, deposits her egg and never returns to it. In other words, Cowbirds construct no nest and place their eggs where other birds will hatch them and raise the selfish, aggressive young that are produced. A young Cowbird will push other young from the nest in which it is hatched or aggressively demand the lion's share of attention, and will clamor loudly to be fed by its small foster mother, long after it can fly.

Cowbirds are usually seen singly or in small groups in pastures, often in the neighborhood of feeding cattle. Various bird observers in North Carolina have seen Cowbirds in juvenile plumage late in the summer and naturally thought that they must have been hatched in the State. Thus Craighill has noted birds he believed to be immatures on Pea Island, at Nags Head, and on Roanoke Island at various times in June and July. Pearson found two at Hatteras village, June 19, 1939, and two days later saw one at Oregon Inlet Coast Guard Station. Apparently, however, no ornithologist ever found a Cowbird's egg in North Carolina until recently.

In *The Wilson Bulletin* for March, 1936, pp. 13-16, Burleigh tells of his discovery of Cowbirds laying eggs in Buncombe County. In relating his experience he said, "On June 10, 1933, Ernest Lyda, a local bird enthusiast, brought me a week-old fledgling taken from a Red-eyed Vireo's nest." Burleigh sought additional evidence in 1934, and records, "It was of decided interest then to find early in June two Red-eyed Vireos' nests that had been parasitized by Cowbirds, that held a fledgling and an addled egg, respectively." Also note the following unexpected fact. All adult Cowbirds formerly seen in the neighborhood had by now departed, evidently having continued on their northern migration.

Therefore, based on all this evidence, Burleigh observes:

"It would seem probable that Cowbirds actually do lay eggs in migration. It is realized that this suggests a situation without a parallel in the bird world, but it would be difficult otherwise to reconcile the fact that young birds and eggs have been found in the nests of such species as the Red-eyed Vireo, with the additional fact that adult birds could not be found during late spring and early summer despite the most diligent search."

This opens up an interesting field of study for bird students in North Carolina. The speckled egg of the Cowbird is always larger than the eggs of the bird in whose nest it is deposited. One and sometimes more than one Cowbird egg may be found in the nest of almost any small bird, especially the Yellow Warblers, vireos, and various native sparrows. According to Craighill the Roanoke Island neighborhood would be a likely region in which to find Cowbird eggs or nestlings.

☆ Seven new records of egg deposition in other birds nests, as these birds moved northward, are distributed over the State. ☆

Family **THRAUPIDAE.** Tanagers.

The members of the tanager family are found only in the Western Hemisphere. At least three hundred and fifty species are known and they are almost entirely tropical and subtropical in their distribution. Of all this great family of brightly colored birds only two representatives reach North Carolina, and they remain with us only about five months before returning to their real home in the tropics. These birds have stout finchlike bills that enable them to feed largely on wasps, bees, and other stinging insects.

With our species, the plumage of the males is mainly red; that of the females is chiefly yellow.

Genus **PIRANGA** Vieillot.

☆ WESTERN TANAGER.

Plate 44, Fig. 15

Piranga ludoviciana (Wilson). [607]

DESCRIPTION. Male in breeding plumage with head crimsan; back, wings, shaulders and tail black; back sometimes with yellaw markings. Hindneck and underparts of body yellaw. Whitish wing bars present. In winter the head af the male is yellaw but slightly tinged with red. Bill dull wax yellawish. Female alive-greenish abave, back and shaulders tinged with gray; underparts dull yellawish; pale yellaw ar whitish wing bars present.

RANGE. A western species that breeds fram British Calumbia, ta Arizana, Sauthern Califarnia, New Mexica and Western Texas. Winters in Mexica and sauth ta Guatemala. During migratians it has been faund eastward ta Lauisiana and narthward ta New Yark and Maine.

RANGE IN NORTH CAROLINA. Of rare accurrence.

A pair was seen at Waynesville (Haywood County) in June, 1944, by Mr. and Mrs. W. G. Templeton.

On February 13, 1957, Bill Joyner and Miss Eleanor Phillips observed a female Western Tanager at close range, and for an extended time, near the caretakers quarters on the Mattamuskeet Wildlife Refuge. Mr. Joyner observed the bird at the same place, for thirty minutes, the next day. Mr. Royston Rudolph, recently moved from Louisiana to Mattamuskeet, found the bird at the same place on February 18, 1957 and confirmed the identification.

Another 1957 record for this Tanager comes from Mrs. Doris Hauser, Fayetteville, North Carolina. At her feeding station, 302 Green Street, she spotted this bird March 21, 1957. What appears to have been the same bird repeated at the station until March 26, 1957. Mrs. Hauser had other observers study this bird at close range and the conclusion was that it was a male bird attaining adult plumage. ☆

SCARLET TANAGER.

Plate 44, Fig. 16

Piranga olivacea Gmelin. [608]

DESCRIPTION. Male in summer: scarlet with black wings and tail. After the fall moult it loses the red and is similar to the female, but the wings and tail are black. Female is light olive-green above; greenish-yellow beneath, the wings and tail dusky. Length 6.50-7.50; wing 3.55-3.90; spread 11.00-12.06; tail 2.80-3.25.

RANGE. Breeds from southern Canada to the mountains of South Carolina. Winters in South America.

RANGE IN NORTH CAROLINA. Summer visitor in the mountain region, mostly transient in the State at large.

The sudden appearance of a male Scarlet Tanager in early spring is one of the most thrilling sights in our bird world. The brilliant red plumage of its body and the velvety-black of the wings and tail as seen against the pale-green of the opening foliage, make a glorious picture. The ensemble emphasizes and epito-

mizes the sweet and glamorous thrill of a warm day in early spring. When the leaves have grown larger the bird will not be so easy to see even if any are still with us. In much of the State it does not tarry long, for the urge to reach its summer home in more northern regions is strong upon it.

In western North Carolina, however, many remain throughout the summer and rear their young. We have not heard of their breeding east of Durham County where they were found by Seeman, July 28, 1929, and again on July 13, 1940, where a nest and adult male were seen by Frank Williams. The song of the Scarlet Tanager is a series of clear, cheerful notes much resembling the vocal outpourings of the robin. The female, while quite an attractive green and yellowish bird, is much less noticeable than its mate. Its more somber hues seem quite in keeping with its retiring disposition.

The nest of this tanager is usually placed on a horizontal limb at no great elevation, and the site selected for it is generally in a thick grove of trees. We may look for the Scarlet Tanager to appear late in April or very early May.

By the latter part of October those that have bred in the mountains, as well as the migrants that have come from the north, are on their way to South America, where they pass the winter months. Tanagers eat some wild berries, but their diet consists mainly of insects.

☆ Early dates are February 10th (Wilmington) and March 18th (Greensboro). ☆

SUMMER TANAGER.

Plate 44, Fig. 17

Piranga rubra rubra (Linnaeus). [610]

Description. Male: uniform rose-red including wings and tail. Female: olive-green above, yellowish-orange beneath, the plumage sometimes flushed with red. Immature males are usually partly red and partly olive-green and yellow, the colors being variable in extent and not always symmetrically distributed. Length 7.00-7.95; wing 3.55-3.95; spread 10.63-12.25; tail 2.80-3.15.

Range. Breeds from Iowa and Maryland southward to the Gulf. Winters from central Mexico to Peru.

Range in North Carolina. Summer resident in the eastern and piedmont regions and in some of the mountain valleys.

This is the "Summer Redbird" so commonly seen in summer throughout the State, except in the higher mountains. It is not so brightly colored as its close relative, the Scarlet Tanager, but nevertheless it is a very attractive denizen of the orchard, shade trees and second-growth forest-lands. It comes to us out of the far South with many others of our feathered friends as May draws near, and soon its lusty call notes may be heard on all sides. Its song is much like that of the Scarlet Tanager; some regard it even superior to the music produced by that superb bird.

The females of these two species so closely resemble each other it usually is difficult to distinguish between them when, as often happens, both chance to be in a neighborhood at the same time.

The nest is a rather shallow, slipshod affair placed on a horizontal limb, either in a pine or deciduous tree. The three blotched and spotted eggs are laid late

GROSBEAKS, FINCHES, BUNTINGS, ETC.

1. PINE GROSBEAK, a. ADULT MALE; b. IMMATURE MALE; c. FEMALE
2. CARDINAL, a. MALE; b. FEMALE
3. PURPLE FINCH, a. MALE; b. FEMALE
4. WHITE-WINGED CROSSBILL, a. MALE; b. FEMALE
5. RED CROSSBILL, a. MALE; b. FEMALE
6. GOLDFINCH, a. MALE; b. FEMALE
7. PINE SISKIN
8. COMMON REDPOLL, a. MALE; b. FEMALE
9. BLUE GROSBEAK, a. MALE; b. FEMALE
10. EVENING GROSBEAK, a. MALE; b. FEMALE
11. INDIGO BUNTING, a. MALE; b. FEMALE
12. ROSE-BREASTED GROSBEAK, a. MALE IN SPRING; b. FEMALE
13. PAINTED BUNTING, a. MALE; b. FEMALE
14. RED-EYED TOWHEE, a. MALE; b. FEMALE
15. DICKCISSEL, MALE
16. SLATE-COLORED JUNCO, MALE IN SPRING
17. SNOW BUNTING, a. MALE IN WINTER; b. FEMALE
18. SMITH'S LONGSPUR, a. MALE IN WINTER; b. MALE IN SPRING
19. LAPLAND LONGSPUR, a. MALE IN WINTER; b. MALE IN SPRING

GROSBEAKS, BUNTINGS, FINCHES, *Etc.*

in May or in June and are a little less than an inch in length. About six months of the year, mid-April to early October, covers the period when this species dwells within our borders. It feeds on wasps and bees and at times commits depredations on apiaries, for it is particularly fond of honey bees.

Family **FRINGILLIDAE.** Grosbeaks, Finches, Sparrows, and Buntings.

This is the largest family of birds in North America where it includes about four hundred species and subspecies. This number, of course, comprises a certain small number of exotic forms that have wandered away from their natural habitat. As an example, a grassquit appeared in Miami, Florida, having perhaps been blown there by some gale from its home in the Bahama Islands. Members of the family are distributed throughout all the continents of the world, except Australia.

Our list of the *Fringillidae* for North Carolina numbers forty-four. These are all small birds, ranging from the Henslow's Sparrow, which is five inches long, to the Cardinal that is fully eight and one-quarter inches in length. All our representatives of the family are much smaller than the well-known robin, whose length is ten inches.

All the native sparrows belong to this group. They are small, brownish birds whose plumage is more or less streaked with lighter colors. They inhabit grasslands where they feed on the ground and resort to elevated positions chiefly to sing or in some cases to build their nests. As a group they have migratory habits although they do not make the vast journeys to and from the tropics so commonly undertaken by most members of the warbler family.

The grosbeaks, finches, sparrows, and buntings possess in common one outstanding physical characteristic: All are equipped with stout, conical bills. Thus equipped they are able to crack with ease the seeds upon which, to a large degree, they feed, especially in winter. During the warmer months they consume insects ravenously and the young are fed entirely upon the soft bodies of insects or their larvae.

Genus **RICHMONDENA** Mathews and Iredale.

EASTERN CARDINAL.

Plate 45, Fig. 2

Richmondena cardinalis cardinalis (Linnaeus). [593]

Description. Male with throat and region around base of bill black; rest of plumage bright rosy-red; bill red; head crested. Female: much duller with the red confined to the crest, wings, and tail; the upperparts otherwise mostly brownish-ash; and the underparts ochraceous buff. Length 7.50-9.25; wing 3.50-4.00; spread 10.50-12.37; tail 3.90-4.60.

Range. From Iowa and Ontario south to the northern part of the Gulf States.

Range in North Carolina. Whole State at all seasons.

The Eastern Cardinal, often called in this State, "Redbird" or "Winter Redbird," is a common resident in most localities. Its nest of weed stems and leaves is lined with grass. Usually this is placed in a bush, small tree, or a cluster of

briars at a height of from three to six feet. The eggs number three or sometimes four. They are white but well-covered with spots of lavender and various shades of brown, and measure about one inch in length. The dates for eggs, so far as we have records, range from about April 4 (1939, Mrs. Kirchofer, Raleigh) to July 2 (Brimleys). Cardinals are often bold in protecting their nests, and have been known to bite blood from the pilfering hand that reached for their treasures.

Like the towhee, this bird is pre-eminently a thicket-loving species, but it is not inclined to spend as much time on the ground, apparently preferring to eat berries in the top of a tree rather than to gather them on the earth at its base. The song is a series of loud, clear whistles that, once learned, cannot afterwards be mistaken for those of any other bird.

☆ Adopted as State Bird March, 1943. ☆

Genus **PHEUCTICUS** Reichenbach.

ROSE-BREASTED GROSBEAK.

Plate 45, Fig. 12

Pheucticus ludovicianus (Linnaeus). [595]

DESCRIPTION. Male with head, neck, and upperparts mostly black, with some white on wings, tail, and rump; breast and under wing-coverts bright rose-red. Female: olive-brown, much streaked, with the under wing-coverts saffron-yellow; head with whitish stripes. Length 7.85-8.25; wing 3.95-4.45; spread about 12.75; tail 2.85-3.15.

RANGE. Breeds from Manitoba to Nova Scotia and south to Missouri and New Jersey, and in the mountains to northern Georgia. Winters in the West Indies and from Mexico to South America.

RANGE IN NORTH CAROLINA. Summer resident in the mountain region, rare and transient elsewhere.

The Rose-breasted Grosbeak is a common bird during the summer months in at least portions of our mountain region, arriving from the south about April 15, or a little later. It has been known to remain in autumn as late as October 25. It breeds mainly at an elevation of 3,000 feet and upward. The nests, flat, shallow structures composed of small twigs, vegetable fibers, and grass, are built in bushes or trees. Of four nests found by Cairns in Buncombe County, one was in a small bush within three feet of the ground, another twenty feet up in a haw tree; the others were in saplings at heights of seven and nine feet. The eggs, greenish-blue and more or less spotted with reddish-brown, are deposited in May.

Outside of the mountains we have only occasional records of its appearance; however, during the periods of migration it has been noted in at least nine localities as follows: Chapel Hill, Davidson, Durham, Greensboro, Guilford College, Pinebluff, Raleigh, Salisbury, and Wake Forest. With one exception all records were made between April 18 and May 14. One was seen at Chapel Hill, September 18 to October 12 (Odum).

Unlike the cardinal, the notes of this grosbeak are quite variable. It is one of the few birds that seems to enjoy eating potato beetles.

Genus **GUIRACA** Swainson.

EASTERN BLUE GROSBEAK.

Plate 45, Fig. 9

Guiraca caerulea caerulea (Linnaeus). [597]

Description. Adult male: blue with chestnut wing bars. Female: brown with whitish wing bars. Immature male is only partly blue, this color being more or less restricted to the head and forepart of the body. Females sometimes have more or less blue in the plumage. Length 6.25-7.25; wing 3.00-3.65; spread 10.25-11.63; tail 2.38-2.90.

Range. Breeds from Missouri and Maryland south to Texas and Florida. Winters in southern Mexico and Central America.

Range in North Carolina. Summer resident in the central and eastern parts of the State.

The Eastern Blue Grosbeak is a summer visitor in that portion of the State lying east of the mountain ranges. It inhabits open country, low pasture lands, or areas abandoned to grow up again. Here where bushes are scattered about, the Blue Grosbeak likes to come. It is not an abundant bird anywhere. In early summer we sometimes see it in the fields where the sprouting oats attract its attention for a brief period. Any damage to crops, however, is so infinitesimal as to be unworthy of serious consideration.

This bird, sometimes called "Big Indigo," frequents comparatively open country, nesting usually in small trees or sometimes on the lower limbs of larger ones. The rather bulky nest is constructed of weed stems or grass and often is lined with horsehair. Sometimes lint, cotton, rags, and pieces of paper are used in its construction. Usually it is built in a fork of a small tree or bush at a height varying from three to eight feet. In this latitude the three to four eggs are laid from late May to mid-July. They are white and unmarked. Size about .85 x .65.

Like other brightly colored birds of this family, the Eastern Blue Grosbeak is a good singer. It is rather partial to corn, which its powerful bill enables it to crack with ease.

Although not common in western North Carolina, Cairns found it at Weaverville on June 10, 1888. Other records from near the mountains are Taylorsville, Alexander County, two seen in June, 1909, by Bruner; Morganton, found breeding by Wayne, the same year. The birds have been recorded in the Raleigh region in summer as early as April 24 (1928) and as late as September 27 (1887), which seems to indicate that as a rule this migratory bird which comes to North Carolina to breed actually stays in the State less than one-half of the year. Eggs have been taken in Chatham County, May 28 and July 17, 1885 (E. T. Adney), and at Greensboro from June 5 to July 16 (Armfield).

☆ Mountain nesting records to add are for Blowing Rock (4100 ft.) and Lake Summit (Henderson County). ☆

Genus **PASSERINA** Vieillot.

INDIGO BUNTING.

Plate 45, Fig. 11

Passerina cyanea (Linnaeus). [598]

DESCRIPTION. Male: mostly deep blue, the wing and tail quills and lores, blackish. Female and immature male (in fall): brown above; pale creamy-brown beneath, slightly streaked with darker on breast. Length 5.12-5.90; wing 2.50-2.90; spread 8.12-8.87; tail 1.90-2.25.

RANGE. Breeds from southern Canada south to Texas and the Florida border.

RANGE IN NORTH CAROLINA. Whole State in summer.

The "Indigo Bird" is a summer visitor in North Carolina. The notebooks of the Brimleys indicate that some arrive in Wake County by April 19, and that they may stay as late as October 19. Armfield has found their eggs at Greensboro from May 22 to June 29, and the Brimleys at Raleigh, May 31 to July 16. Like the preceding species this is not particularly a woodland bird, but prefers open areas with scattered bushes or trees.

The nests are made of dry grasses and weed stems, often with leaves woven in the bottom of the structure. These are built in bushes or sometimes in stout weeds only a few feet from the ground. The three or four eggs are pale bluish-white. Two broods often are reared in a season, each, of course, in a freshly built nest. The song of the male is sweet, but in the nature of a somewhat feeble warble.

The Indigo Bunting is an unobtrusive and rather inactive bird often seen singing on some elevated perch, as, for example, on a telephone wire beside the highway. At a little distance its form and color may cause one to think perhaps he is looking at a small edition of the Blue Grosbeak.

Insects, seeds, berries, and fruits constitute the diet of this attractive bird.

☆ Earlier dates are March 12th (Wilmington) and March 30th (Matthews). A winter date is January 28th (Wilmington). ☆

PAINTED BUNTING: NONPAREIL.

Plate 45, Fig. 13

Passerina ciris (Linnaeus). [601]

DESCRIPTION. Male with head and neck blue; underparts vermilion; back golden-green; rump and tail purplish-brown. Female: olive-green above, pale yellowish-green below. Length 5.40; wing 2.70; tail 2.15.

RANGE. South Atlantic and Gulf States in summer; wintering in Mexico and Central America.

RANGE IN NORTH CAROLINA. Coastal region in summer, from Beaufort south.

Every bird lover should contrive in some way to see a male Nonpareil. Its blue head and neck, its brilliant red underparts and lower back, all set off with a golden-yellow area on the upper back, give the impression of a lavish use of color.

In North Carolina, where we find it only from about April 15 until early autumn, it is confined to the immediate vicinity of the coast from the South Carolina line to the Beaufort neighborhood, which is the farthest north we have yet found it. It is rather common in the woods and thickets of the narrow coastal

barrier islands and on the adjacent mainland. It is numerous at the Orton Plantation on the Cape Fear River above Southport, and T. G. Empie reported that at least one nest was built every season for fifteen years at his place near Wilmington some ten miles from the sea.

Pearson, who has examined various nests in Brunswick County, has found that the birds seldom build more than six feet from the ground. Contrary to various published reports that the male sings only from the interior of a bush or tree, he has invariably heard it singing from some exposed twig.

☆ A northern record is for Oriental, Pamlico County (July 15th). There are three winter records for the Wilmington Area. ☆

Genus **SPIZA** Bonaparte.

DICKCISSEL.

Plate 45, Fig. 15

Spiza americana (Gmelin). [604]

Description. Brownish-gray above; back and scapulars streaked with black; breast yellow; chin white. Male with a black patch of variable size on lower throat. Female: duller with little or no black on throat. Length 5.75-6.75; wing 2.80-3.30; tail 2.55-2.90.

Range. Breeds from Wyoming to Ontario and southward to Texas, not common today east of the Alleghanies.

Range in North Carolina. Formerly summer resident, now very rare.

The Dickcissel, or Black-throated Bunting, is a prairie bird which in the days of the early American ornithologists, was of frequent occurrence on the Atlantic Coast, but later it abandoned this region almost entirely.

In 1928, they appeared to attempt to regain their old territory and were seen in numerous places in the east, including South Carolina and Pennsylvania. In that year a pair was observed at Raleigh on May 19, by L. H. Snyder, L. A. Whitford, and C. S. Brimley. This was in a wheat field near State College. Two were also heard singing at Hendersonville on August 6, of the same year, by J. C. Crawford of Raleigh, who was well acquainted with the species in Nebraska.

☆ New spring records are from Morganton, Lenoir, Charlotte, Winston-Salem, Greensboro and Raleigh. Winter records are from Wilmington and Charlotte. ☆

Genus **HESPERIPHONA** Bonaparte.

EASTERN EVENING GROSBEAK.

Plate 45, Fig. 10

Hesperiphona vespertina vespertina (Cooper). [514]

Description. Olivaceous; crown, wings, and tail black; forehead, rump, and under tail-coverts yellow; bill very large, yellowish. Female: grayer with but little yellow. Length 7.00-8.50; wing 4.25-4.50; tail 2.75-3.25.

Range. Breeds from Alberta to Michigan. Winters in the interior of the United States south of Canada and irregularly in the northeastern States.

Range in North Carolina. Of rare occurrence in winter.

The Eastern Evening Grosbeak, one of the most striking birds of the finch family, has been recorded from North Carolina only in two localities. At Chapel Hill a flock was seen about the State University campus for several days, and a male and female were taken on March 8, 1922, by W. C. Coker. The same year the species was seen at Salisbury on March 26 and April 1, by E. M. Hoffman, Elmer E. Brown, and others.

The species is to be looked for as an occasional winter and spring visitor.

☆ Since 1942 these birds have come increasingly to this State. In 1946 small numbers were reported from January 24th to April 21st, from Salisbury, High Point, Greensboro, Pittsboro, Raleigh and Henderson.

In 1950 four birds were seen (April 1st) at Warrenton.

In the 1951-'52 season this bird appeared in 23 localities, from Bertie County westward to Swain County. The dates were from November 28th to May 7th, and numbers varied up to an estimated 500.

In the 1954-'55 season the birds appeared at 19 localities from New Hanover to Swain Counties. The dates were November 25th until May 11th.

In the 1955-'56 season records of this bird came from 12 localities from Elizabeth City westward to North Wilkesboro. The dates were from November 26 to May 7, and numbers varied up to an estimated 500. ☆

Genus **CARPODACUS** Kaup.

EASTERN PURPLE FINCH.

Plate 45, Fig. 3

Carpodacus purpureus purpureus (Gmelin). [517]

DESCRIPTION. Male is streaked above; the body suffused with rose-red, particularly on head, rump, and breast. Female and immature male: very different; olivaceous mixed with grayish, white beneath, the breast heavily streaked with dusky, a broad whitish stripe above each eye. Length about 6.22; wing 3.24; spread 9.50-10.37; tail 2.30.

RANGE. Breeds throughout the length of the southern Canadian Provinces and south to the mountains of Maryland.

RANGE IN NORTH CAROLINA. Whole State in winter.

In North Carolina, Eastern Purple Finches appear only in winter. They are very erratic in their distribution, common for days in a neighborhood and then entirely absent for a time. Usually they go in flocks composed of males, females, and immatures, which for more than a year closely resemble their mothers. With us they feed on the buds and seeds of trees both about dwelling houses and in the forests. They are particularly fond of the seeds of the tulip tree and also enjoy the seeds of the elm in early spring.

On their northern breeding grounds, the antics of the male during the period of courtship have attracted much attention. Concerning the performance, A. A. Allen wrote that it "begins with the male's picking up a straw and ends, after an elaborate display, with his falling over as if dead, until a peck from the female arouses him."

The Eastern Purple Finch has been known to appear at Chapel Hill as early as September 12 (Odum, 1935) and has been seen at Highlands as late in spring as May 9 (C. S. Brimley, 1908).

☆ Extension of dates is to August 7th (Raleigh) and May 31st (Rocky Mount). ☆

Genus **ACANTHIS** Borkhausen.

COMMON REDPOLL.

Plate 45, Fig. 8

Acanthis flammea flammea (Linnaeus). [528]

Description. Adult male with throat, breast, crown, and rump red, otherwise streaky above; underparts whitish; female has only the crown red; young birds are streaked, and without red. Length 5.75; wing 3.00; tail 2.50.

Range. Breeds from Alaska and eastern Canada. Winters from northern United States southward (rarely) to South Carolina.

Range in North Carolina. Scarce straggler in winter.

Here is a little bird whose habits of flight and feeding activities are much like those of the goldfinch, but whose brownish feathers would seem to mark it as a siskin or an ordinary sparrow. Add to this description a bright red spot from bill to top of crown, and you have a redpoll. It is a rare winter visitor in North Carolina. In fact, there are five kinds of redpolls in North America and it is a rare experience to see them anywhere in the United States except along the northern border, then usually only in winter. Sometimes flocks of these birds may be found feeding on the seeds held above the snow by tall grass or weeds. Hunger will now and then drive them into the dooryard.

We have records of redpolls being found in North Carolina only on six occasions. These were all the species known as the Common Redpoll. Bishop reported some on Pea Island, December 10, 1908, and Ludlow Griscom, writing of some he saw on a visit to Currituck County, said: "Two birds, December 31, 1916, feeding in the bushes on the beach opposite Monkey Island, in company with Savannah and Ipswich Sparrows were so tame that we could walk within six feet of them." Several were seen on Pivers Island, Beaufort Harbor, by E. L. Barney, March 23-25, 1920. The species was also seen by Mrs. Grinnell at Arden, Buncombe County, October 29, and December 27, 1939, and a single bird at Washington, March 25, 1940, by Joe Biggs.

☆ Thirteen new records from seven localities are as follows: Asheville, Spencer, Winston-Salem, Greensboro, Raleigh, Henderson and Cape Hatteras. These range from December 22nd to April 5th. ☆

Genus **SPINUS** Koch.

NORTHERN PINE SISKIN.

Plate 45, Fig. 7

Spinus pinus pinus (Wilson). [533]

Description. Plumage streaked with brown above and below, suffused with yellow in the breeding season; bases of wings and tail quills yellow. Resembles a goldfinch in

size, build, and habits, but may be easily distinguished by the streaked upperparts and underparts. Length 4.60-5.12; wing 2.75-3.06; spread 8.18-8.87; tail 1.60-1.95.

RANGE. Breeds from Alaska to New England and in the mountains south to western North Carolina. Winters over most of the United States and south to Florida.

RANGE IN NORTH CAROLINA. Irregular winter visitor in most of the State, breeds on some of the higher mountains.

Siskins remind one of dull-colored goldfinches. With us they are seen in flocks during the colder months and may appear anywhere in the State. They are erratic in their movements and cannot be depended upon to come to the same neighborhood in successive years. Their food consists of various small seeds that may be available, such as those of the elder, pine, cedar, and trumpet vine. Siskins have been noted at Rocky Mount on October 31 (1938), which is our earliest autumn record for the species. C. S. Brimley saw individuals at Raleigh as late in spring as May 11 (1911). Cairns stated that he found them nesting on Black Mountain, but apparently left no definite data on the subject.

EASTERN GOLDFINCH.

Plate 45, Fig. 6

Spinus tristis tristis (Linnaeus). [529]

DESCRIPTION. Male in summer: bright canary yellow, the crown, wings, and tail black; wing bars and inner webs of tail-feathers white; upper tail-coverts gray; lesser wing-coverts yellow. Female: much duller, yellowish-brown above; dull yellow below; wings and tail blackish; wing-coverts olive-green or grayish. Winter birds and immature birds resemble the female in general, but adult male in winter has the lesser wing-coverts yellow. Length 4.45-5.40; wing 2.60-2.90; spread 8.50-9.25; tail 1.80-2.10.

RANGE. Breeds from southern Canada to Oklahoma and northern Georgia. Winters over much of that territory and south to the Gulf.

RANGE IN NORTH CAROLINA. Whole State, but scarce or absent in summer in the eastern section.

Goldfinches have cheery, canary-like songs that they often render while in seemingly aimless flight, as they pass here and there over the fields. Often they progress in a bounding, wavelike manner, chanting *"per-chic-o-ree"* with each upward swing. Except in the nesting season, they are found in flocks. They are fond of the seeds of the dandelion, sunflower, and numerous plants. Their substantial, compact nests of grasses, strips of bark, and thistledown are built in trees and bushes at from 5 to 40 feet from the ground. Goldfinches are late breeders, nests rarely being seen before well along in June. Cairns said that in Buncombe County they breed in July and August.

Among the local names for this well-known species are: Wild Canary, Lettuce Bird, and Thistlebird.

Genus **LOXIA** Linnaeus.

RED CROSSBILL.

Plate 45, Fig. 5

Loxia curvirostra pusilla Gloger. [521]

DESCRIPTION. Male: brick-red. Female: brownish washed with greenish-yellow; no white wing bars in either sex. Length 6.00-6.50; wing 3.40-3.70; tail 2.00-2.20.

RANGE. Breeds from Alaska to Michigan and Quebec and irregularly in the mountains to Georgia. Winters to Texas and Florida and along the coast sporadically to Virginia.

RANGE IN NORTH CAROLINA. Probably resident on some of the higher mountains, scarce winter visitor in the rest of the State.

In the coniferous forests of the Northern Hemisphere, birds are found, the points of whose mandibles do not meet, but cross each other near the tips, in a manner which may cause one to wonder how a bird with such a peculiar beak can ever pick up any food. As a matter of fact crossbills possess a pointed, scoop-like tongue that performs this function for it. The odd-formed bill enables the bird to pry apart the overlapping parts of a pine cone and the tongue secures the seeds which are available to few other birds.

The Red Crossbill is one of the North American forms of the crossbill that now and then is seen as far south as North Carolina. The Brimleys have occasionally recorded it in Wake County. They last observed its presence on November 8, 1919, not very far from Raleigh, when two were found opening the seed burs of the Jimson weed. Cairns said it was a resident breeding bird on Black Mountain, but gave no particulars regarding any nest he may have found. H. L. Carson, Jr., and wife, saw approximately fifteen Red Crossbills just below the summit of Mount Mitchell, June 21, 1938 (*The Auk,* 1940, p. 421). In the Great Smoky Mountains National Park a pair was discovered feeding young on April 10, 1938, near Indian Gap, and a young was seen the same year on April 19. The first of these observations was made just across the border in Tennessee; the latter on the North Carolina side of the line. (Stupka, *The Auk,* October, 1938.) Burleigh records a flock of 30, seen June 6, 1930, on Mount Mitchell, "some of them in streaked juvenile plumage." These were at 5,200 feet elevation. At 6,200 feet a single bird was seen August 27, 1930, and two were found at 5,200 feet on September 4, 1931. He also gives two records of its occurrence in pinewoods near Swannanoa, "four birds being seen April 1, 1931, and two March 7, 1933."

BENDIRE'S CROSSBILL.

Loxia curvirostra bendirei Ridgway. [521d]

DESCRIPTION. Compared to the Red Crossbill (*L. c. pusilla*) it is of "much brighter coloration; shorter wing and tail; shorter culmen combined with longer gonys, the mandible being proportionately stronger; and bill more slender."—RIDGWAY.

RANGE. Breeds in the Cascade Mountains and Sierra Nevadas from Colorado northwestward to British Columbia. Winters normally to Nebraska, New Mexico, and coast of California.

Thomas D. Burleigh reports (MS.) finding the Bendire's Crossbill in North Carolina on October 21, 1932. Near the top of Mount Mitchell, at 6,500 feet elevation in the fir and spruce woods, he encountered two crossbills. Of them he wrote: "Their appearance, as they fed in the upper branches of one of the largest trees, at once aroused a suspicion as to their identity, and one that was taken proved clearly referable to this Rocky Mountain race."

Robert Ridgway in *Proc. Biol. Soc. Wash.,* II, 101, April 28, 1884, describes this bird and gives its average measurements as follows: Male—wing 3.68; tail

2.34; depth of bill .42; middle toe .57; female—wing 3.50; tail 2.23; depth of bill .39; middle toe .56.

WHITE-WINGED CROSSBILL.

Plate 45, Fig. 4

Loxia leucoptera (Gmelin). [522]

DESCRIPTION. Male, rose-red; female, brownish-olive; wings with two white wing bars. Length 6.25; wing 3.50; tail 2.65.

RANGE. Breeds from northern New England northward; south in winter casually to North Carolina.

RANGE IN NORTH CAROLINA. Once taken at Raleigh.

Three specimens of the White-winged Crossbill were killed by Bruner, February 23, 1907, while they were feeding on cedar berries near the Agricultural and Engineering College at Raleigh. Bruner had no gun with him, but in his scientific longing to discover the identity of these queer-looking birds, he picked up three stones and threw them in quick succession at the flock. Strange to say, he struck a bird with each stone, and all three specimens are now in the possession of the State Museum, two being preserved as mounted specimens. We have no other record of the appearance of the White-winged Crossbill in North Carolina.

Its flight is much like that of the Goldfinch, and in its summer haunts its pleasing song also is usually given from the topmost twig of a tree or tall bush.

☆ New records are for Lenoir (February 9th), Smoky Mountains (December 26th) and Yancey County (February 5th.) ☆

Genus **PIPILO** Vieillot.

RED-EYED TOWHEE.

Plate 45, Fig. 14

Pipilo erythrophthalmus erythrophthalmus (Linnaeus). [587]

DESCRIPTION. Male with upperparts black, as also throat and breast; belly white; sides rufous; outer web of primaries with white; tail black, the three or four outer tail-feathers tipped with white. Female with the black replaced by grayish or fuscous-brown. Length 7.50-8.75; wing 3.30-3.75; spread 10.25-11.37; tail 3.55-4.10. Iris red in adult male.

RANGE. Breeds from Saskatchewan to Ontario and south to Kansas and northern Georgia. In the East, winters from Maryland to the Gulf of Mexico.

RANGE IN NORTH CAROLINA. Resident in the mountains and in much of the piedmont region. Winters throughout the State.

The Towhee, in North Carolina, most commonly known as the "Joree," is a well-distributed bird in most sections of the State. Its sharp, querulous *che-wink* notes may be heard in bushy fields, or issuing from thickets in open woods, or from those bordering heavier forests. Sometimes the bird appears in the lawn shrubbery. This is a very energetic bird and its scratching among the fallen leaves often produces a disturbance equal to that made by a domestic hen looking for food.

In spring it ascends to the top of a bush or small tree and sings in a most pleasing and characteristic manner. Its food consists of insects, berries, and

seeds. Sometimes it has been accused of pulling up sprouting corn, but such a habit is probably not very general. Towhees construct their nests of strips of bark, dead leaves, and grasses either on or very near the ground. The spotted eggs range from three to five in number.

The Red-eyed Towhee population in North Carolina is much increased in winter by migrants from the northern States.

Like most other birds, towhees vary in size, and if the individuals of a region average larger or smaller than those of another region, it indicates to the minds of some systematists that the two may be worthy of subspecific designation. If to the matter of size there be added some well-marked difference in coloration, then indeed the thought is strong that two different birds are before you. This is well illustrated in the common towhee of eastern United States. The average length of the Red-eyed Towhee is about 8.35 inches, the iris is red, and the three or four *outer tail-feathers* are tipped with white to the extent of from 1.30 to 1.60 inches.

There is another towhee that averages slightly smaller in length, that possesses a white or yellowish iris, and has only the two outer tail-feathers tipped with white, the total area of white on wings and tail being slightly less. When it was described from Florida in 1871, by Dr. Coues, he gave it the name of White-eyed Towhee. Here, then, are two subspecies of the towhee.

Then in 1913, Arthur H. Howell described another variety which he had taken at Mobile and which he named, the Alabama Towhee. This is slightly larger than the Red-eyed; the adult male has the typical red-eye, but the tail and wings contain more white than does the White-eyed. The sides and flanks are slightly paler brown than in the other two just mentioned.

These three subspecies have been claimed for North Carolina, where their ranges overlap. Also some of the local breeding birds may move southward during the winter, while others coming from the north may move in to take their place. Another serious complication arises in the fact that along the borders of the range in North Carolina, many specimens are found that show various stages of intergradation, thus at times causing much confusion in identification.

ALABAMA TOWHEE.

Pipilo erythrophthalmus canaster Howell. [587b]

DESCRIPTION. Similar to *P. e. erythrophthalmus,* but with larger bill and slightly longer tail; white markings on tail-feathers less extensive; sides and flanks averaging paler. Females with head, neck, chest, and upperparts more grayish; iris red. This new race may be recognized in either sex by the relatively small amount of white on the tail as compared with *erythrophthalmus* and by the large size and red eyes, as compared with *alleni.* Females are somewhat more grayish than those of *erythrophthalmus* but less than *alleni.* Male: wing, 85-93 mm; tail, 90-101; length of white spot on outer tail-feathers, 28.7. Female: wing, 86; tail, 96; length of white spot on outermost tail-feather 24.5. (Extracts from original description in *Proc. Biol. Soc. Wash.,* 26, 199-202, Oct. 23, 1913.)

RANGE. Southern States from Alabama to southern and western North Carolina and northeastern Tennessee, breeding throughout its range.

RANGE IN NORTH CAROLINA. Southern and eastern portions of North Carolina according to Burleigh, but only the extreme southwest according to Wetmore.

The bird named above was described by Arthur H. Howell from specimens taken at Mobile. Discussing its occurrence in eastern North Carolina, Burleigh, writing in *The Auk*, October, 1937, stated:

"This well-marked subspecies was found to be plentiful throughout the year on this entire stretch of coast, and its presence, determined by specimens taken, definitely eliminated suppositions advanced in past years that both *Pipilo erythrophthalmus erythrophthalmus* and *P. e. alleni* were found during the summer months in the eastern part of the State. At Fort Macon, on January 19 and 20, 1931, Alabama Towhees were found in all the scattered myrtle and live-oak thickets and were actually plentiful there. Specimens taken then, both males and females, were clearly referable to this race. In 1932, towhees were found to be equally plentiful in the breeding season here on the coast, and males taken at Kilkenny, May 24; Swanquarter, May 26; Beaufort, May 27; and Fort Fisher, June 1, all proved typical of *canaster*."

Wetmore, nevertheless (Proc. USNM., Vol. 90, No. 3117, p. 525), refers the above named birds to the White-eyed Towhee (*P. e. alleni*), and adds, "It hardly seems to me desirable to place the coastal birds with light eyes and dark brown flanks and sides with *canaster*, as in so doing we use this name for birds with two definite characters of another race."

Wetmore, however, determines as the Alabama Towhee, two males taken 8 miles southwest of Murphy, June 12, 1939, and at 5,100 feet on Rocky Bald, 12 miles west of Franklin, though the tail spots are a little large.

WHITE-EYED TOWHEE.

Pipilo erythrophthalmus alleni Coues. [587a]

DESCRIPTION. Similar to common towhee, but white on wings and tail more restricted (on tail confined to two outer tail-feathers only, or else represented on third by small spots only; while in the towhee proper the white is present on three outer tail-feathers, and often as small spots on the fourth). Iris white or yellowish-white in adult male.

RANGE. Florida to North Carolina.

RANGE IN NORTH CAROLINA. Coastal region, inland to Richmond County and Raleigh.

The nesting and feeding habits of this towhee are similar to those of the Red-eyed and Alabama Towhees.

Regarding its distribution in the State, Alexander Wetmore, under date of December 10, 1940, supplied us with the following statement:

"That towhees with light-colored eyes are found in the southeastern coastal region of North Carolina is well known, the present material indicating that they range more widely than anticipated. The birds here come in contact with the true Red-eyed Towhee *P. e. erythrophthalmus*, and show intergradation in some individuals through variation in the light color of the eyes and in larger size, as well as in the extent of the white tip on the outer rectrix, which is much restricted in typical *alleni*.

"At Southport this is the breeding form, specimens being taken May 11 and 18, 1939. Three males, . . . average a little large but have the white tips on the tail small. A female is nearly typical, . . . and the forepart of the body has a defi-

nite grayish cast. It was somewhat of a surprise to get light-eyed towhees 7 miles southeast of Rockingham in Richmond County, indicating the influence of the southern bird coming in from the south along the valley of the Pee Dee River. These birds are a little large, . . . but the white in the tail is not extensive and the female is distinctly dark and grayish. Though not typical they are definitely to be placed with *alleni*. It was also unexpected to find this same intermediate type of bird near Greenville on November 4 and 9, four males having definitely light eyes though averaging a little large, with the white on the tail more extensive. . . . Other fall birds were taken at Engelhard on October 20, Mansfield on November 16, and Morehead City on November 24."

After further study of the towhees in North Carolina, Wetmore again wrote us on February 26, 1941:

"The coastal birds with light-colored eyes are mainly an intermediate group. If we assume that light eyes is one of the principal characters of *alleni* which occurs in typical form in Florida, then I think it reasonable for the time being at least to consider these intermediates from the coast of North Carolina as *alleni* rather than to call them *canaster* which has red eyes normally, and in which the sides and flanks are distinctly paler brown."

Other records belonging here are of light-eyed specimens taken at Beaufort, July 18, 1912, S. C. Bruner; Lake Ellis, May 28, 1907, C. S. Brimley; in Brunswick County, June 7 and 8, 1939, J. H. Grey; and at Raleigh, female and young male, May 29, 1939, by Grey and Mrs. R. C. Simpson, and another female, June 26, 1939, Grey.

☆ SPOTTED TOWHEE.

Pipilo erythrophthalmus arcticus (Swainson). [588]

DESCRIPTION. Similar to our Red-eyed Towhee. Male: Head and upper parts black, with rows of many white spots on the back and wings; large white spots in the outer tail. Female: Similar, with dusky brown head.

RANGE. Breeds from Southern Alberta and Saskatchewan south to Montana and Nebraska. In migration it is found in Wyoming and Utah. Winters from Colorado and Nebraska to southern Texas. Casually found in Illinois and Wisconsin.

RANGE IN NORTH CAROLINA. Accidental, the first record.

This Arctic Towhee is one of the several sub-species of the Red-eyed Towhee that are normal to western America. It is included here because Mrs. Doris C. Hauser, Fayetteville, N. C., recognized it among other birds at her home feeding station on February 15, 1957. The bird was taken and is now a mounted specimen in the State Museum. ☆

Genus **PASSERCULUS** Bonaparte.

Small ground sparrows with the tail-feathers neither stiffened nor with white blotches; four forms have been reported from North Carolina.

IPSWICH SPARROW.

Plate 46

Passerculus princeps Maynard. [541]

DESCRIPTION. Pale grayish, the top of head and back narrowly streaked with brown and blackish; underparts white; the breast and sides lightly streaked with fuscous; superciliary stripe usually entirely white, sometimes yellowish in front. Length 6.00-6.50; wing 2.85-3.20; tail 2.25-2.50.

RANGE. Breeds on Sable Island, Nova Scotia; winters along the Atlantic Coast sand dunes to Georgia.

RANGE IN NORTH CAROLINA. Coastwise in winter.

The Ipswich Sparrow is a rather large, pale-colored sparrow, occurring along the Atlantic Coast; in this State it is known as a winter visitor on Pea and Bodie Islands, where Bishop found it to be common in February, 1901. It also was noted by Griscom and others on Currituck Beach, January 2, 1915, and December 31, 1916. Burleigh has found them in January at Oregon Inlet and Fort Macon; E. L. Green, Jr., saw them at Cape Hatteras, November 4, 1937, and in January, 1938; and Mrs. R. C. Simpson observed one on Shark Shoal near Beaufort, December 11, 1939. It may be looked for among the sand dunes of the Outer Banks.

☆ Additional winter records (4) are for the Wilmington area. ☆

EASTERN SAVANNAH SPARROW.

Plate 46

Passerculus sandwichensis savanna (Wilson). [542a]

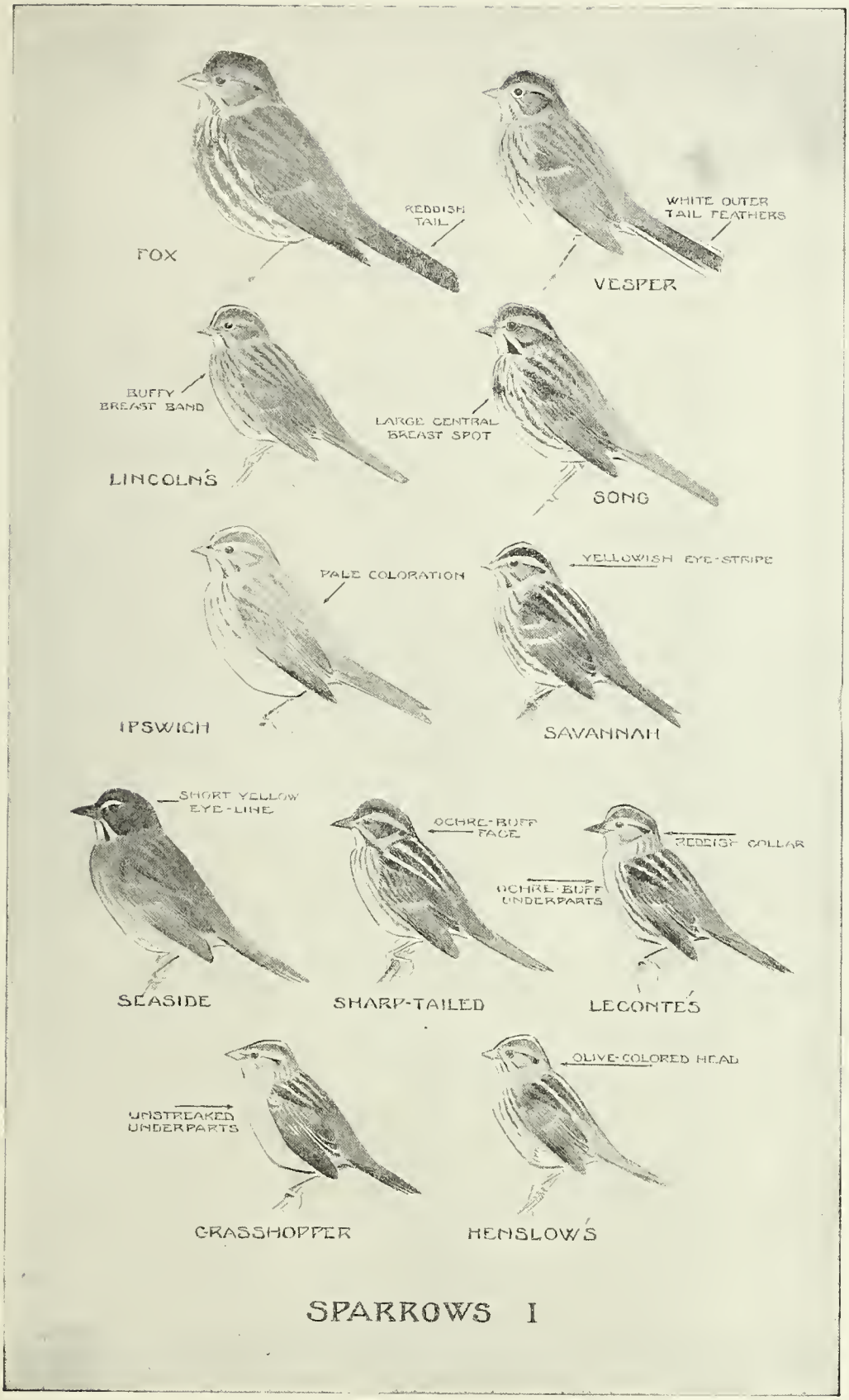
DESCRIPTION. Feathers of the back mostly brown, streaked down the middle with black and margined with paler; underparts white with rather small and numerous blackish streaks on the breast. Superciliary line white, the anterior part yellow or yellowish. Length 4.85-5.50; wing 2.60-2.90; spread 8.31-9.50; tail 1.90-2.20.

RANGE. Breeds from Manitoba to Quebec and south to Iowa and to the mountains of Pennsylvania; winters from Indiana and New Jersey southward to the Gulf of Mexico.

RANGE IN NORTH CAROLINA. Winter visitor.

The white stripe above the eye of the Savannah Sparrow is yellow or yellowish in front—a good field mark to remember. This bird likes meadows and low-grounds where the grass is long. When flushed from cover it flies low for a little distance and then drops suddenly from sight. It is known in North Carolina only as a winter visitor, and is a common species in suitable situations from the sea to the higher mountains. It has been recorded at Raleigh from August 20 (1931) to May 13 (1916).

Speaking of this sparrow in the Asheville zone, Burleigh regards it as "unquestionably the most plentiful of the sparrows occurring here in migration, numerous small flocks being seen in the open fields and pastures from the middle of September until the following May. I had thought that relatively few would winter, but this did not prove to be the case, for in such spots as the open Mills River Valley scattered flocks were observed each year throughout the entire winter, feeding there on the seeds of weeds sticking above the snow. My earliest date of arrival in



SPARROWS I

Courtesy of Roger Tory Peterson

the fall is September 4, 1930, and my latest date for departure in the spring was May 19, 1934."

LABRADOR SAVANNAH SPARROW.

Passerculus sandwichensis labradorius Howe. [542d]

DESCRIPTION. Similar to the Eastern Savannah Sparrow, but the back is darker and the streaks on the breast are larger and fewer in number.

RANGE. Breeds in Labrador; winters southward along the Atlantic Coast.

RANGE IN NORTH CAROLINA. A winter visitor.

J. S. Holmes, North Carolina State Forester, secured one of these birds at Clayton, Johnston County, May 4, 1937. Wetmore reports specimens taken in 1939 in the following localities: "Engelhard, October 13; Stumpy Point, October 27; Greenville, November 6; about 6 miles northeast of Beaufort, November 14 and 15; and near Atlantic, November 25. Some of these are somewhat intermediate toward *P. s. savanna.*" Perhaps the reason this bird has not more frequently been noted in North Carolina is due to the fact that it so closely resembles the Eastern Savannah, few observers without the use of a gun would detect the difference between the two.

Burleigh, who has made an intensive study of the Savannah Sparrow's population in Buncombe County, advises us as follows: "This northern race of the Savannah Sparrow proved to be by no means uncommon about Asheville, fully a third of the specimens taken representing this form. At no time were flocks observed, one or two birds being found feeding in the open fields with the more common Eastern Savannah Sparrow. In all a total of seventeen specimens of this race were taken, including the following: males, April 26, October 27, and November 12, 1932, and May 7, 1934, and females, May 7, 1930, May 12, November 15, and December 13, 1932, and March 10 and May 17, 1934."

NEVADA SAVANNAH SPARROW.

Passerculus sandwichensis nevadensis Grinnell. [542c]

DESCRIPTION. Similar to some other Savannah Sparrows but paler. Pure white below with fine blackish streakings on sides of throat and pectoral region. Sides, flanks, and head also whitish and streaked with dark. Length 4.50-5.55; wing 2.65-2.88; tail 1.85-2.08.

RANGE. Southern British Columbia and northern California eastward to North Dakota to southern Nevada and northern New Mexico. Winters southward to northern Mexico.

RANGE IN NORTH CAROLINA. A rare straggler.

"In a small series of Savannah Sparrows that were collected about Asheville two females taken in the open Mills River Valley on April 7 and November 12, 1932, were found to represent this western race. It is apparently here recorded for the first time for the State."—BURLEIGH.

CHURCHILL SAVANNAH SPARROW.

Passerculus sandwichensis oblitus Peters and Griscom.

DESCRIPTION. Similar to the Eastern Savannah Sparrow, but differing by the feathers of the back having pale gray margins and heavy black centers, gray and black being the predominant colors with little or no buff or brown.

Range. Breeds near Fort Churchill in northern Canada; migrates mostly west of the Alleghanies.

Range in North Carolina. Probably a rare migrant in the mountain region.

Our only record is of one taken in Buncombe County on March 23, 1895, and reported by Peters and Griscom, in *Bull. Mus. Comp. Zool.*, Vol. 80, January, 1938, p. 456.

Genus **AMMODRAMUS** Swainson.

EASTERN GRASSHOPPER SPARROW.

Plate 46

Ammodramus savannarum pratensis (Vieillot). [546]

Description. Crown blackish, streaked with lighter and with a very distinct median light stripe; rest of upperparts grayish, buffy, and black; sides of head, throat, and breast buffy; belly white; breast with dusky streaks in immature birds. Edge and bend of wing and line over eye yellow. Length 4.90-5.35; wing 2.18-2.55; spread 7.63-8.56; tail 1.50-1.95.

Range. Breeds from the Great Plains eastward to New England and southward to northern Georgia. Winters from southern Illinois and North Carolina south to Central America.

Range in North Carolina. Transient, summer resident, and rare winter visitor.

This little sparrow dwells in the grass such as one finds in neglected meadows and in old fields, and often it resorts to weed patches for its food. In taking flight, it flutters away somewhat like a wren, but as if the exertion was too exhausting for comfort, it soon drops from view. Except when it mounts a stump, weed stalk, or fence to sing, it seldom voluntarily appears in the open.

The nest is built on the ground in a slight depression sometimes partly screened by a clump of grass or a clod. Bruner, describing two nests that he found near Raleigh in 1908, said they were "rather large inside and quite flimsily constructed of grass." The eggs, generally four or five in number, are white, speckled and dotted with rufous-brown.

The coloring of the Grasshopper Sparrow much resembles that of the Savannah Sparrow, but in size the bird is distinctly smaller, the head is comparatively large and the tail is noticeably short. It is so distinctly a ground inhabiting species that it is even supposed to roost in the grass. It has received its name because of its song which bears an extremely close resemblance to the high buzzing sound produced by some of the commonly heard grasshoppers.

The *Check-List* of the American Ornithologists' Union, published in 1931, lists this species as wintering from "North Carolina south," but our only positive winter record is one taken by Burleigh at Swannanoa, Buncombe County, December 29, 1931.

We know of it in summer from Rocky Mount (Craighill) and Moore County (Skinner) westward into the mountain region. Skinner's record of March 1 (1926) near Pinehurst, is the earliest we have known it to appear in spring. At Raleigh it has been seen as late in autumn as November 8 (1932). Eggs have been found at Greensboro from May 23 (1895) to September 16 (1896). Burleigh says the average date of the arrival of this bird in spring at Asheville was found to be April 17, and with the exception of the one bird he regarded as

wintering in the region he has not found any in autumn later than November 6 (1933).

☆ More eastern winter and spring records are for Wilmington. New nesting records are for New London and Charlotte. ☆

WESTERN GRASSHOPPER SPARROW.

Ammodramus savannarum perpallidus (Coues). [546a]

DESCRIPTION. Very similar to the Eastern Grasshopper Sparrow, but paler below and with less black and more chestnut above. (Chapman's *Color Key*.)

RANGE. Breeds from southeastern British Columbia and southern Minnesota to southern California and southern Texas. Winters from southern Texas to Costa Rica.

RANGE IN NORTH CAROLINA. Rare straggler.

Our knowledge of the occurrence of this western form of the Grasshopper Sparrow is confined to the statement of Burleigh (MS.) that he collected a male at Swannanoa in Buncombe County on March 26, 1934.

Genus **PASSERHERBULUS** Stone.

LECONTE'S SPARROW.

Plate 46

Passerherbulus caudacutus (Latham). [548]

DESCRIPTION. Sides of crown mainly blackish, the median stripe pale buffy in front, whitish behind; upperparts brownish, spotted or streaked with blackish; a broad buff superciliary stripe; underparts mostly buffy, the sides streaked with blackish; belly white. Length 4.40-5.50; wing 1.80-2.06; tail 1.87-2.25.

RANGE. Breeds from Great Slave Lake to Minnesota. Winters from Kansas and Tennessee to Texas and Florida.

RANGE IN NORTH CAROLINA. Accidental.

This bird, whose natural habitat is in the regions of central, western United States, has been recorded in North Carolina but once. A specimen was taken by C. S. Brimley on the edge of a marsh near Raleigh, April 21, 1894. The skin was identified by William Brewster.

EASTERN HENSLOW'S SPARROW.

Plate 46

Passerherbulus henslowii susurrans Brewster. [547]

DESCRIPTION. Head and neck buffy-olive; crown heavily streaked on each side with black, leaving a distinct median stripe; upperparts with the feathers mostly chestnut, centered with black and edged with whitish; underparts mostly buffy, deeper on chest and sides; belly whitish. Length 4.75-5.25; wing 2.10-2.20; tail 1.90-2.05.

RANGE. Breeds from southern New England to southern Virginia. Winters in the southeastern States to Florida.

RANGE IN NORTH CAROLINA. Mostly a spring transient.

In general form and habits, Henslow's Sparrow resembles the Grasshopper Sparrow, but in color it is more buffy. Like the slightly smaller species, it has an almost uncanny ability to keep out of sight. In the breeding season it seems

to prefer to dwell in wet lowlands, but during its sojourn with us it is found at times in dry upland broom sedge fields.

In recent years this species has been observed in summer in a damp meadow near Statesville by Miss Anderson, Stimson, and others; in 1940, several nests were found. In his published list of the birds of Chapel Hill (1935) Odum says, "Not uncommon summer resident, April 28-October 7," and adds: "Female ready to lay taken (Taylor) and several pairs have shown unmistakable evidence of breeding. Damp, lush meadows." The birds have been noted in April in Buncombe County, also in the same month at Greensboro, Salisbury, Statesville, and Southport. Burleigh heard one singing at Stumpy Point, July 20, 1934. Regarding its singing abilities, Peterson says: "It gives utterance to one of the poorest vocal efforts of any bird; throwing back its head, it ejects a hiccoughing *tsi-lick.*" At Raleigh, Henslow's Sparrows have been noted only between March 18 and May 3. There is much yet to be learned about the status of this bird in North Carolina.

Genus **AMMOSPIZA** Oberholser.

SHARP-TAILED SPARROW.

Plate 46

Ammospiza caudacuta caudacuta (Gmelin). [549]

DESCRIPTION. Upperparts brownish olive-green, the feathers of the back margined with grayish; crown brown laterally with an indistinct bluish-gray median stripe; a buffy stripe over eye, and another down side of throat, their ends enclosing the gray ear-coverts; underparts buff, streaked on the breast with blackish; edge of wing yellow as in all other species of the genus. Length 4.80-5.85; wing 2.15-2.40; tail 1.90-2.25.

RANGE. Breeds in salt marshes from New Hampshire to Virginia. Winters from New Jersey to Florida.

RANGE IN NORTH CAROLINA. Winter visitor in salt marshes along the coast; perhaps breeds rarely.

This is a small, nondescript sparrow that now and then one may flush from patches of grass growing on or near the seashore. It was described and named by Gmelin in the year 1788.

The plumage of this species varies slightly in different parts of its range, and for this reason efforts have been made to show that some of these subspecific differences are important enough to be recognized. Thus, Nelson's Sparrow, *A. c. nelsoni,* was proposed by J. A. Allen in 1875 and acceptance by ornithologists followed. Similarly, Dwight's Acadian Sparrow, *A. c. subvirgata,* was described in 1887, and later was given general recognition. Louis B. Bishop, in *The Auk,* 1901, p. 269, described another form of this species taken by him near Wanchese, Dare County, North Carolina, and proposed for it the name *A. c. diversus.* The Nomenclature Committee of the A. O. U. turned a deaf ear to the suggestion in 1931. It is claimed that this race, breeding from Maryland to North Carolina, is much darker in coloration and that the lower sides and breast are heavily marked. Its admirers may yet live to see *diversus* given that recognition by ornithological technicians, which they feel is its just due.

For many years the Sharp-tailed Sparrow has been regarded only as a winter bird in the State, occurring in the immediate neighborhood of the sea. Bishop

said it was a rather common winter visitor at Pea Island, giving May 11 (1901) as its latest spring appearance. Coues reported it as common in the marshes near Fort Macon from October to May. In *The Chat* for January, 1939, E. L. Green, Jr., called it a "resident" at Cape Hatteras, although no nest was noted.

NELSON'S SPARROW.

Ammospiza caudacuta nelsoni (Allen). [549.1]

DESCRIPTION. Similar to preceding, but slightly smaller and with darker upperparts, the feathers of the back more olive-brown and more broadly margined with white; the underparts deeper buff, and with indistinct streaks or none. Wing 2.10-2.35; tail 1.85-2.20.

RANGE. Long regarded as breeding from Alberta to South Dakota, and wintering along the Atlantic and Gulf Coasts, from North Carolina to Florida and Texas.

RANGE IN NORTH CAROLINA. Known as winter visitor and also reported as summer resident.

Nelson's Sparrow appears to be a rare bird in North Carolina, and until recently we only knew of one observer having found it in the State. Bishop said it was rather common on Pea Island, February 11-18, 1901, and on May 10, 1920. It is a well-known species of interior North America and has been thought to appear in the South Atlantic States only as a transient in migration or as an occasional winter visitor and that its range here was confined to the coastal region.

However, in *The Auk* for October, 1937, Burleigh tells of taking a female "in the open salt-marsh at Beaufort, May 27, 1932." Specimens were found near Southport May 10 and 17, 1939 (Wetmore). Burleigh says that he collected two at Swannanoa, May 25, 1934.

NORTHERN SEASIDE SPARROW.

Plate 46

Ammospiza maritima maritima (Wilson). [550]

DESCRIPTION. Upperparts nearly plain olivaceous tinged with ashy; the wings and tail more brownish; beneath grayish-white, the breast indistinctly streaked with pale grayish. Length 5.25-6.00; wing 2.25-2.40; tail 2.10-2.50.

RANGE. Salt marshes of Atlantic Coast, breeding north of North Carolina, wintering from Virginia to Florida.

RANGE IN NORTH CAROLINA. A migrant and probably a winter visitor.

In *The Chat* for January, 1939, E. L. Green, Jr., speaks of this bird being a winter visitor at Cape Hatteras. As it must migrate regularly in spring and autumn along the North Carolina coast, and as it is said to pass the winter "from Virginia southward," it would not be surprising to find that many spend the entire winter in our eastern salt marshes.

Seaside Sparrows are hard to flush from the marshes in which they lurk. Coues said:

"They climb the reeds with remarkable ease, sliding up and down, skipping from one to another, and hanging in every attitude except head downwards; they are doubtless much aided by the somewhat stiffened tail. On the ground they are unmistakably sparrow-like and always proceed by hopping; the flight does not differ noticeably from that of their several near allies. It is irregular and very quick and they never remain long on the

wing." (*Natural History of Fort Macon, N. C.*, No. 1. *Proc. Acad. Nat. Sc. of Philadelphia*, May 2, 1871.)

☆ Additional winter records (17) are coastal, from Pea Island to Wilmington. ☆

MACGILLIVRAY'S SEASIDE SPARROW.

Ammospiza maritima macgillivrai (Audubon). [550d]

Description. Similar to preceding, but with the feathers of the back deep black, bordered with greenish-olive and margined with bluish-gray; and with the flanks and sides streaked with dusky instead of with bluish-gray.

Range. Salt marshes of South Atlantic States.

Range in North Carolina. Salt marshes of the coastal region.

Incidents of Seaside Sparrows breeding along the North Carolina coast, as reported by H. H. Brimley, Coues, Pearson, and others in the 1919 edition of this book, evidently should be credited to the Macgillivray's subspecies. Records of *macgillivrai* nesting in Pender County in May, 1929 (Kelly and Pearce), and at Oregon Inlet, May 31 and June 1, 1936 (Duvall), indicate this fact, which is further confirmed by Burleigh in *The Auk* for October, 1937. Burleigh says:

"A detailed study in 1932, of the distribution of this Seaside Sparrow on this stretch of coast showed it to be confined largely to North Carolina, with the center of abundance between Swanquarter and Snead's Ferry. At Pine Island, where it was first noted May 21, it was somewhat scarce, despite an almost unlimited area of salt marsh. Here it was found at but two widely separated spots, five or six pairs nesting together where the marsh grass was relatively high and thick. At Swanquarter, on May 25, at Beaufort, May 28, and at Snead's Ferry, May 31, it was plentiful, while at Fort Fisher, June 2, it was scarce and noted in small numbers only. A nest found at Snead's Ferry, near the mouth of the New River, containing four well-incubated eggs, was well concealed in a thick clump of marsh grass. Specimens taken at the localities here mentioned were all clearly referable to this race."

Genus POOECETES Baird.

EASTERN VESPER SPARROW.

Plate 46

Pooecetes gramineus gramineus (Gmelin). [540]

Description. Upperparts brownish-gray streaked with black; lesser wing-coverts bright rufous; underparts white with black streaks on the breast and sides; outer tail-feathers mostly white, the next one broadly tipped with white. Length 5.50-6.70; wing 2.40-2.75; spread 9.75-11.00; tail 2.40-2.75. The white outer tail-feathers, which are conspicuous when the bird flies, and the rufous on the lesser wing-coverts are distinctive characters for this species.

Range. Breeds from Ontario and Cape Breton Island south to Nebraska and North Carolina. Winters from North Carolina to the Gulf Coast of Texas.

Range in North Carolina. Mostly a winter visitor, breeds in some sections of the mountains and of the northern half of the State.

The Eastern Vesper Sparrow is a common winter visitor in open fields in most parts of the State. Cairns called it a resident in Buncombe County, and stated that it is usually found on high pasture land, where it commences to breed in April. Armfield took a set of its eggs near Greensboro on June 1, 1893. Sherman

and C. S. Brimley found it apparently settled down to breed at Blantyre, Transylvania County, in early May, 1908, and Bruner reported it fairly common at Blowing Rock in the summers of 1905 and 1907. Craighill says it occasionally breeds at Rocky Mount.

The nest is built on the ground at the foot of a small bush or weed, and is composed of grass with a lining of hair. The eggs, commonly four in number, are a pale pinkish-greenish, or grayish-white, marked with blotches, dots, and lines of various shades of rusty-brown. Size .80 x .60. In eastern North Carolina where this bird is regarded only as a winter visitor, it arrives near the middle of October and leaves about April 15, though it has been once observed as late as May 11 at Raleigh.

The Eastern Vesper Sparrow is easily distinguished from other small sparrows by the white outer tail-feathers, which ordinarily are plainly evident when the bird is in flight. Its song is very pleasing especially when delivered in the hush of a quiet evening. Burleigh found it breeding (1930-33) at Swannanoa and in the Mills River Valley near Asheville.

Genus **CHONDESTES** Swainson.

EASTERN LARK SPARROW.

Plate 47

Chondestes grammacus grammacus (Say). [552]

DESCRIPTION. Brownish above, streaked with blackish; underparts white with a black spot on the breast; crown and a large patch behind eye, chestnut, the former with a median pale stripe; loral and malar stripes black; outer tail-feathers except middle pair broadly tipped with white. Length 5.75-6.75; wing 3.20-3.80; tail 2.70-3.00.

RANGE. Breeds in the United States chiefly from Appalachian Mountains westward to Nebraska and Minnesota. Winters from Mississippi to Mexico.

RANGE IN NORTH CAROLINA. Of occasional occurrence.

This sparrow, with a strikingly marked head, is a bird of the open fields. Rarely has it been encountered in North Carolina. One was taken in Mitchell County, August 9, 1886; H. H. Brimley killed one at Raleigh, August 19, 1889, and found a deserted nest with four eggs, July 24, 1890; and C. S. Brimley saw a bird in the same region, October 23, 1893. After a lapse of 46 years, it again came to notice in this State when E. L. Green, Jr., discovered a flock of nine individuals at Cape Hatteras, January 20, 1938. Walker reports that one appeared on the Pea Island Refuge, January 13, 1939, and remained in the neighborhood of Sandy Ridge Lodge until March 31.

☆ New winter records are for Greensboro, Mount Olive and Wilmington. ☆

WESTERN LARK SPARROW.

Chondestes grammacus strigatus Swainson. [552a]

DESCRIPTION. Distinguished from the eastern form by "its pale dorsal color with restricted black streaks, and the light shade of brown on cheeks and forecrown."

RANGE. Breeds in western United States and Canada. South in winter to Central America.

RANGE IN NORTH CAROLINA. A rare straggler.

An immature female was taken near Stumpy Point, Dare County, October 23, 1939, and identified by Wetmore.

Genus **AIMOPHILA** Swainson.

BACHMAN'S SPARROW.

Aimophila aestivalis bachmani (Audubon). [575a]

DESCRIPTION. Upperparts streaked with rusty and grayish; underparts white, except the chest and sides which are buffy; edge of wing yellow, but none on head. Length 5.60-6.25; wing 2.20-2.50; spread about 8.25; tail 2.40-2.70.

RANGE. Breeds from southern Indiana and central Virginia to central Texas and northwestern Florida. Winters from southern North Carolina to Florida.

RANGE IN NORTH CAROLINA. Breeds in central and eastern portions of State; some pass the winter here.

Fig. 96. Bachman's Sparrow.

For a sparrow, the Bachman's renders an unusually loud and varied song of most delightful sweetness. This is delivered from some elevated position, as a fence post, weed stalk, or telephone wire. Most of its time it spends on the ground where it seeks its food of various seeds and insects. The country it prefers is thin open woods or fields with scattering bushes. Never abundant or going in flocks, it is generally found singly or in pairs. In the pinelands of Craven and Brunswick, we have often found it after a little search. When flushed it flies but a short distance and again hides in the cover of the wire grass that grows so generally in those sections of the State. Often it is difficult to get it to rise a second time, and like a mouse it runs along under cover hoping thus to avoid the intruder.

The Bachman's Sparrow builds its nest on the ground and what is unusual for any eastern sparrow is the fact that its eggs are white and unspotted. Pearson found a nest with four eggs cleverly hidden under the edge of a bunch of grass in the old New Garden Burying Ground at Guilford College.

In the central and northern portions of the State it appears to dwell only in summer and leaves for more southern regions about the first of October. At

Raleigh, where it breeds, C. S. Brimley reports its presence as early as March 9, and in autumn as late as September 20. Skinner found it in Moore County throughout the year but less common during the winter months.

Genus **JUNCO** Wagler.

SLATE-COLORED JUNCO.

Plate 45, Fig. 16

Junco hyemalis hyemalis (Linnaeus). [567]

DESCRIPTION. Plumage slate-gray, the head perceptibly darker, the color of the upperparts covering chin, throat, and upper breast and sides; rest of underparts white; outer tail-feathers white and very noticeable in flight. The female is browner. Length 5.76-6.50; wing 2.90-3.25; spread 9.00-10.00; tail 2.50-2.90.

RANGE. Breeds from the mountains of New York north and west to the Barren Grounds. Winters from Ontario to the Gulf Coast.

RANGE IN NORTH CAROLINA. Whole State in winter.

Fig. 97. Slate-colored Junco.

The Slate-colored Junco, or Snowbird, is a common winter resident in most parts of North Carolina. In scattered flocks of almost any number from half a dozen to forty individuals, one sees them by the roadside, in the garden, or in a neglected field. It is a dark bird with blackish head and with breast and outer tail-feathers of white. In cold weather it may come to your yard looking for crumbs. Late in spring, shortly before departing for the north, its modest little song may be heard if the observer is alert for sounds that often pass unnoticed.

From south to northwest, the Junco has a very extensive range. Pearson found it in a ranch yard in southeastern Texas in December, and in July watched it

feeding its young well beyond Dawson where the Yukon River rushes by on its way to the Bering Sea. The bird arrives in North Carolina in October and usually leaves by the last of April. Our earliest record is October 18 at Durham (Seeman) and our latest, May 4, at Raleigh (C. S. Brimley).

☆ Earlier fall dates are October 3rd (Raleigh) and September 24th (Bertie County). A late spring date is May 17th (New London). ☆

CAROLINA JUNCO.

Junco hyemalis carolinensis Brewster. [567e]

Description. Similar to the Slate-colored Junco but the crown is the color of the back and the dark color of the back and sides encroaches more on the white of the belly. The size also averages a little larger. Wing 3.00-3.25; tail 2.80-3.07.

Range. Breeds in southern Alleghanies. Winter range not definitely known.

Range in North Carolina. Permanent resident, breeding above 3,500 feet.

In 1886 it was discovered that the Junco breeding in the mountains of North Carolina was colored somewhat differently from the well-known Slate-colored Junco (see description above), hence there was added to the list of North American birds, the Carolina Junco. Often its nest is hidden in a slight cavity on the side of a woodland hill, in a crevice, or under a cluster of grass in a bank by the roadside. Throughout the spring and early summer, the male is often heard giving his simple but very pleasing song. This species, almost universally called "Snowbird" in North Carolina, is a dweller of all the higher mountains, and at Blowing Rock, Highlands, and other places is a common and characteristic bird of the streets and gardens.

According to Burleigh: "This is undoubtedly the commonest and most characteristic bird of the higher ridges in the southern Appalachians." He further states: "Contrary to general opinion it is practically a resident; and while less abundant in winter, it can be found then, despite the severe weather, in the spruce and fir woods." He mentions that on December 23, 1930, at the top of Mount Mitchell, with ground covered with snow, zero weather, and a blizzard blowing, "small flocks of these birds were seen at frequent intervals feeding contentedly in the shelter of fir thickets." He states further that it was uncommon for it to descend to the valleys about Asheville in winter.

Fresh eggs were found May 16, 1930 (6,500 feet) and August 2, 1932 (6,600 feet).

Genus **SPIZELLA** Bonaparte.

EASTERN TREE SPARROW.

Plate 47

Spizella arborea arborea (Wilson). [559]

Description. Top of head and streak behind eye deep rufous; upperparts brownish, streaked with black on the back; underparts pale-ashy in front and on sides; belly white. Length 6.00-6.50; wing 2.80-3.10; tail 2.60-2.90.

Range. Breeds from central Canada to Newfoundland. Winters from southern Canada to Georgia (rarely).

RANGE IN NORTH CAROLINA. Possibly a regular winter visitor in Buncombe County, largely unknown elsewhere.

The Eastern Tree Sparrow bears a close resemblance to the common Chipping Sparrow, with its reddish-brown cap and white stripe over the eye, but it has a dark spot on its light breast. It is an uncommon winter visitor to North Carolina. Burleigh noted three at Asheville, December 26, 1932, and again nine days later. One specimen was collected.

Observers have reported it at Andrews, Cherokee County (Mrs. Wilson) and later at the same place by Collett (March 9, 1902). J. M. Valentine noted one with a flock of White-throated Sparrows at Chapel Hill, January 4, 1935. Our fourth record is from Arden, Buncombe County; here Mrs. D. W. Grinnell found one on November 25, 1937, and saw the species on three other occasions between then and December 26, 1938. Four individuals were found on this latest date. One was seen at Micaville, Yancey County, December 20, 1939, by H. H. Cash; another at Windom, December 24, 1939, by James Hutchins.

Tree Sparrows generally are found in small flocks, hunting for seeds among the weeds of old fields and resting and sunning themselves on the branches of near-by bushes or trees.

☆ An eastern record is for Lake Mattamuskeet (December 28th) and other records are from Greensboro (December 26th) and Lenoir (May 9th). ☆

EASTERN CHIPPING SPARROW.

Plate 47

Spizella passerina passerina (Bechstein). [560]

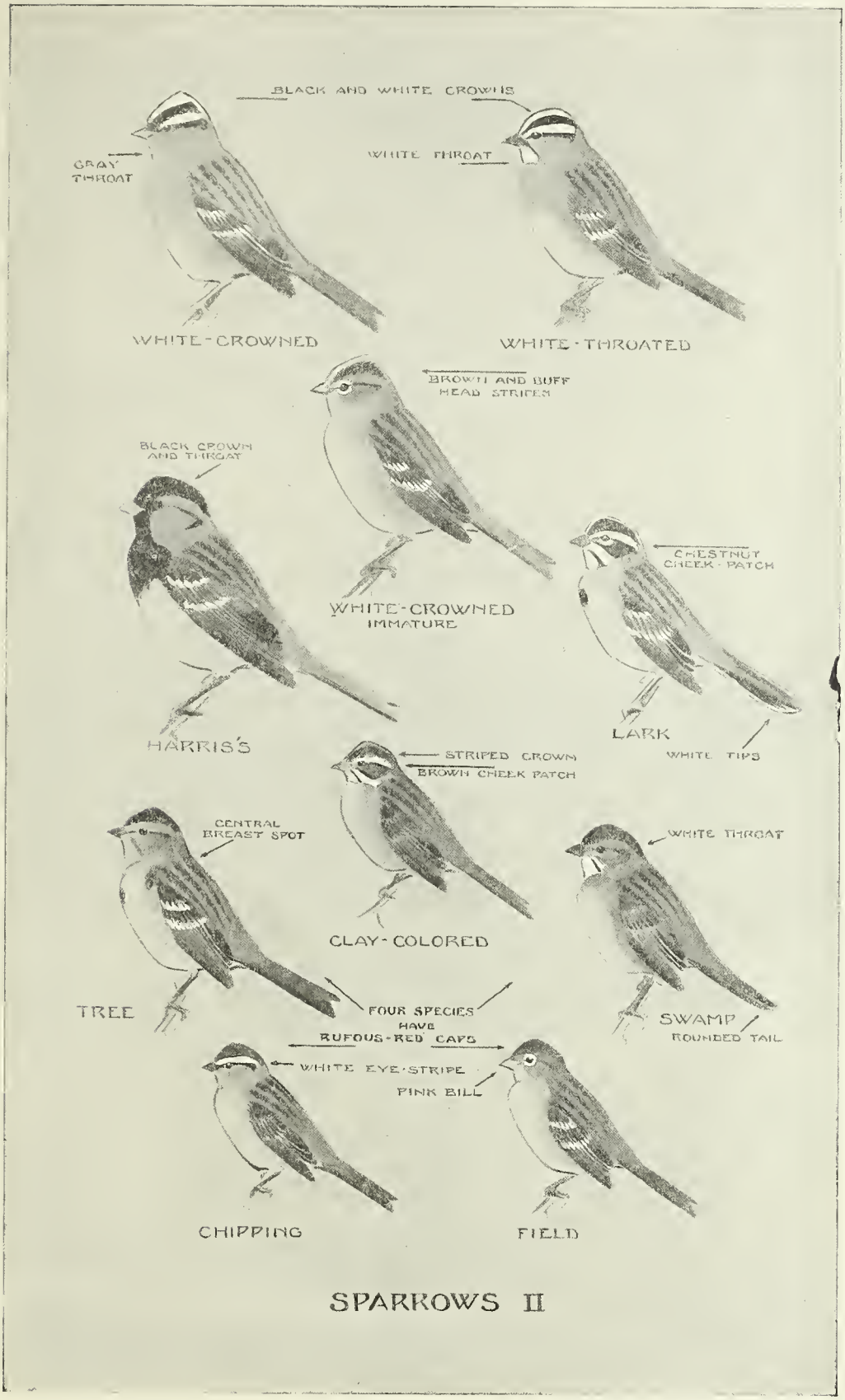
DESCRIPTION. Crown rufous, a whitish line over the eye and a black line from bill through eye; upperparts grayish and rufous streaked with black; underparts ashy-white unstreaked. Crown streaked with black in immature and winter birds; bill black. Length 5.00-5.85; wing 2.55-2.90; spread 8.00-900; tail 2.20-2.60.

RANGE. Breeds from the Yukon, and Cape Breton Island, southward to Texas and central Georgia. Winters from Oklahoma and North Carolina to the Gulf.

RANGE IN NORTH CAROLINA. Whole State in summer; wintering to some extent in the east.

The Eastern Chipping Sparrow is an abundant summer resident in the State, frequenting orchards, yards, old fields, and the neighborhood of highways. The bulk of the population moves southward in autumn, but some have been seen at Raleigh on November 25 and at Washington in December and January. Odum speaks of it at Chapel Hill as "Common summer resident, March to November; local and irregular winter resident; observed winters of 1931 and 1933-34." Burleigh saw ten at Bent Creek, Buncombe County, December 10, 1933.

The nest of this sparrow is often built near a human residence. It is placed on the limbs of shrubs, bushes, and trees and sometimes in a climbing rose or a honeysuckle vine. It is made of fine weed stems and dried grasses. There was a long period when it was rare to find one that was not lined with horsehair. With the growing scarcity of horses such building material became difficult to obtain in many neighborhoods and of late years Pearson has examined several



SPARROWS II

Courtesy of Roger Tory Peterson

nests that had a lining of human hair, probably gathered from the ground beneath boudoir windows. Around Raleigh it most often breeds in pinewoods in similar situations to the Pine Warbler.

☆ New winter records (16) extend from Wilmington to the Smoky Mountains. ☆

EASTERN FIELD SPARROW.

Plate 47

Spizella pusilla pusilla (Wilson). [563]

DESCRIPTION. Paler and duller than the Eastern Chipping Sparrow with longer tail and more buffy underparts; sides of head almost uniformly pale without a dark stripe through eye; bill pale. Length 5.25-5.75; wing 2.25-2.70; spread 7.70-8.35; tail 2.40-2.70.

RANGE. Breeds from southern Canada to northern Florida. Winters from New Jersey to the Gulf.

RANGE IN NORTH CAROLINA. Whole State at all seasons.

The Eastern Field Sparrow is another of our most common birds. It is found principally in grass fields and open country generally, where it may be seen in spring and early summer perched on some limb, or treetop, pouring out its song with the greatest animation. Like the preceding bird, it also frequents the neighborhood of houses, where it feeds on the insects in gardens and lawns. In winter its food consists mainly of weed seeds. Like practically all our native sparrows, it is, therefore, eminently deserving of our careful protection.

This bird builds its nest in a low bush or a bunch of grass or weeds, sometimes directly on the ground, but more usually from a few inches to a foot or two above the earth. It is made of grass and weed stems, lined with fine grass, rootlets, or hair. The four eggs laid in May, June, or early July, are white, thickly spotted with rusty-brown, and have been found at Raleigh at various dates ranging from May 4 to July 27.

The typical song of the Field Sparrow is clear and sweet. It usually begins with a *chre-wee,* repeated about five times and followed with a trill, a kind of a rapid *de-de-de-de-de.* Once learned, the presence of the species can easily be determined when early in spring it returns to the orchards, fields, and shrubbery bordering our highways and country lanes.

Genus **ZONOTRICHIA** Swainson.

HARRIS'S SPARROW.

Plate 47

Zonotrichia querula (Nuttall). [553]

DESCRIPTION. Top of head, throat, lores and a streak down middle of breast distinctly black, above brownish-gray streaked with black. Immature: brownish on feathers of head, breast, and sometimes throat. Length 7.50; wing 3.50; tail 3.25.

RANGE. Breeds in far northern Canada. Winters from western Missouri and Kansas southward to southern Texas.

RANGE IN NORTH CAROLINA. A rare straggler.

This handsome bird is closely related to the well-known White-throated Sparrow and its general habits are similar. Its summer home chiefly occupies a wide district bordering the southern verge of the Barren Grounds. It is a great traveler when in autumn it begins its annual winter wanderings. It has been seen as an accidental transient in Oregon, California, and Ohio, also in Massachusetts, and now we are pleased to report that one has been found in Buncombe County, North Carolina, by Burleigh, who writes:

"My one record for the occurrence of Harris's Sparrow here is that of a single bird, a male in immature plumage, found with a flock of White-crowned Sparrows about a thicket in the open Mills River Valley, on March 13, 1933. Its noticeably large size separated it at once from the other sparrows with which it was feeding, and as it was easily approached it was identified with little difficulty. As I was unaware of any other records for the State it was collected, and definitely added to the list of birds credited to North Carolina."

☆ One record is a flock of 46 seen by Thurmond Chatham, at Ronda, in Wilkes County. ☆

WHITE-CROWNED SPARROW.

Plate 47

Zonotrichia leucophrys leucophrys (Forster). [554]

Description. Back ashy, streaked with brown; crown with a wide central white (adults) or buff (immature) median stripe, and lateral black (adults) or brown (immature) stripes, the median stripe as broad as, or broader than, the laterals; a white or whitish line above the eye. No yellow on bend of wing nor on head; light color of throat continuous with that of breast. Length 6.50-7.50; wing 3.00-3.30; tail 2.80-3.20.

Range. Mainly found in Canada and western United States; wintering and migrating chiefly west of the Alleghanies.

Range in North Carolina. Transient and winter visitor—not common.

The head of the White-crowned Sparrow makes it very conspicuous among other representatives of the sparrow tribe which sometimes are found associated in the shadows of a favorite thicket. It is inky black with a wide, snow white central stripe that passes over the crown where it joins with two other white stripes that also sweep backward from the bill. The pronounced width of this central band of white is one of the distinguishing field marks that differentiates it from the White-throated Sparrow.

Of its music Seton has been quoted as saying: "Its usual song is like the latter half of the White-throat's familiar refrain, repeated a number of times with a peculiar sad cadence and in a clear, soft whistle that is characteristic of the group." Probably few bird students have listened to its song in North Carolina, for it does not breed in the State and has seldom been noted by field observers. It is during the spring migration when it might be expected to break into song.

It is primarily a western bird and is seen but casually in the eastern United States south of the Potomac River. In fact, we have reports of it only from some eight or ten regions in North Carolina. Cairns found it in Buncombe County, October 16, 1889; Bruner at Raleigh, April 14, 1912; Wayne at Morganton (two seen), March 30, 1914; Miss M. A. Boggs at Waynesville, December 1, 1931;

Craighill and Benbow at Rocky Mount, November 12, 1934; Hodel at Elkin in March and October; Mrs. Grinnell at Arden, November 17, 1934; and E. L. Green, Jr., who observed two at Cape Hatteras, March 25, 1936.

The fact that we had heretofore regarded the White-crown only as of accidental occurrence in the State caused Burleigh to be surprised when he found it not only a spring and fall migrant but also as a winter resident in the Asheville region.

Somewhat pointedly he remarks: "It is difficult to understand why in past years it has been almost completely overlooked, for in adult plumage it is certainly far from inconspicuous. The first small flocks usually appeared the middle of October, and it was the last of April before the last stragglers had gone. In the winter it was noted in smaller numbers, and it was rather local in its distribution then, but there were certain thickets in the open valleys where small flocks could invariably be found each year. At one such spot in the Mills River Valley I never failed to find a flock varying in size from nine to as many as twenty of these birds from early November until the following April. My earliest date of arrival in fall is October 6, 1933, my latest date for the departure in spring April 29, 1932."

This fine aristocrat of the thickets so beloved by sparrows and other ground feeding birds gathers its food among the fallen leaves where it scratches mightily with both feet at the same time. This, by the way, is the habit of all the four species of this genus that have been found in North Carolina.

☆ We add 63 new records from 18 places from Cape Hatteras to Wilmington and westward to Clay County. Late spring dates are May 10th (Elkin) and May 17th (New London). ☆

GAMBEL'S SPARROW.

Zonotrichia leucophrys gambeli (Nuttall). [554a]

DESCRIPTION. Similar to Z. *l. leucophrys,* but the white line just above the eye extends entirely to the bill.

RANGE. Breeds from the tree limit of northwest Alaska and northern Mackenzie to central Oregon and Montana; winters from northern California and Utah south to northwestern Mexico. Casual east of this territory.

RANGE IN NORTH CAROLINA. A rare straggler.

This subspecies of the White-crowned Sparrow, whose normal range is in the far West, has rarely been found to wander east of the Mississippi River. Specimens have been taken in Illinois, Michigan, and South Carolina.

In North Carolina, Burleigh secured an immature female in Mills River Valley near Asheville on October 31, 1932.

WHITE-THROATED SPARROW.

Plate 47

Zonotrichia albicollis (Gmelin). [558]

DESCRIPTION. Back rusty-brown or chestnut, streaked with black; crown with a white median and two lateral black stripes, and a white superciliary stripe changing to yellow in front; throat white in sharp contrast to ashy of breast. Immature birds have the head

stripes, brown and whitish; edge of wing yellow. Length 6.25-7.10; wing 2.85-3.15; spread 8.85-9.80; tail 2.90-3.15.

RANGE. Breeds from central Canada to New York. Winters from Connecticut to Florida.

RANGE IN NORTH CAROLINA. Whole State, winter visitor.

This bird is a very virile, vivacious member of the sparrow family that winters in abundance in North Carolina. Usually it is seen in flocks about the shrubbery of the lawn or garden, as well as in weed patches or thickets near the borders of fields. Not infrequently it is found associated with juncos, either by design or because their habitat is so often identical. It is in song when it arrives in North Carolina in autumn, but usually is silent through the colder months, recommencing its singing with the first warm days of February and continuing with frequency until its departure for the North. It begins to arrive about the first of October and leaves us in May. The records for Raleigh are October 4 to May 26; Asheville, October 1 to May 16; and Chapel Hill, September 29 to May 17. Its latest spring occurrence for the State was recorded by Bragaw at Orton Plantation, May 31, 1939. The bird feeds largely on the seeds of weeds but also eats insects and various kinds of wild berries and fruits.

New England bird lovers say when this bird sings it says *"Old Sam Peabody, Peabody, Peabody."*

☆ An earlier arrival is September 24th (Greensboro) and late departure dates are June 25th (Wilmington) and July 6th (Raleigh). ☆

Genus **PASSERELLA** Swainson.

EASTERN FOX SPARROW.

Plate 46

Passerella iliaca iliaca (Merrem). [585]

DESCRIPTION. Upperparts rufous-brown and brownish-gray without any black streaking; the upper tail-coverts, tail and wings more rufous than the rest of the upperparts; underparts white, marked especially on chest with triangular spots of rufous. Length 6.20-7.25; wing 3.30-3.70; spread 10.55-11.35; tail 2.80-3.15.

RANGE. Breeds throughout most of Canada; winters from the Ohio and Potomac valleys to Texas and Florida.

RANGE IN NORTH CAROLINA. Whole State in winter.

This is the largest and handsomest of our sparrows. Although it does not mate and rear its young in our State, it does give us the benefit of its charming song, especially when the warm days of early spring arrive. While with us, it spends most of its time on the ground in thickets; from which retreat it ventures only cautiously into the neighboring weed patches in quest of seeds.

This is a bird of arresting appearance, with its numerous spots and dashes of rich brown and with a bright rufous tail. Because of these markings it was long called the "Fox-colored Sparrow." It haunts much the same character of cover as that beloved by towhees and the White-throated Sparrow. Often the Hermit Thrush may be found perched near-by. Individuals of these four species on occasions have been taken in the same trap of a bird bander. It is a rather shy

bird so do not be disappointed if it shows a hesitancy to come near your house to sample the seeds you may have placed there to lure hungry birds from the near-by thicket. It may not even come at all unless perchance the snow has buried the weed seeds which Nature usually provides.

Fox Sparrows have been recorded at Raleigh as early in autumn as November 3 and at Chapel Hill by November 5, and have been known to remain at Raleigh until April 6, and at Chapel Hill as late as April 7. Our earliest record for its appearance in the fall was made by Burleigh at Asheville on October 26 (1933). He saw it in spring as late as April 10 (1931).

☆ Two later spring dates are May 1st (Raleigh) and May 5th (Greensboro). ☆

Genus **MELOSPIZA** Baird.

A genus of small thicket inhabiting sparrows with short rounded wings and rather long rounded tails.

LINCOLN'S SPARROW.

Plate 46

Melospiza lincolni lincolni (Audubon). [583]

DESCRIPTION. Crown brown, streaked with black and with a light median line; back olive-gray or brown, sharply streaked with black; underparts mainly white but with a broad buffy band across the breast which is narrowly streaked with black. Length 5.25-6.00; wing 2.30-2.65; tail 2.30-3.00.

RANGE. Breeds from Alaska to New York. Winters mainly from the southwestern United States to Guatemala.

RANGE IN NORTH CAROLINA. Recorded during migration in a few localities.

Lincoln's Sparrow has seldom been observed in North Carolina, perhaps because usually it is so exceedingly shy it often escapes detection. Its range is chiefly central and western North America, comparatively few having been noted in the Atlantic Coast States. It is so averse to public inspection that in regions where it breeds it is said to stop singing and drop to cover the moment it discovers that it is being watched. The song is much like the gurgling notes of the House Wren.

This is another far western bird that appears in North Carolina only as a rare wanderer. The following reports of its occurrence in Buncombe have come to us: Cairns, at Weaverville, May 6, 1893; Sprunt in North Fork Valley, September 17, 1931; and Burleigh on various dates in September and October, 1935. Aside from the above, we have Wayne's report of it at Morganton, May 14, 1914, and the fact that the skin of one is in the State Museum, at Raleigh, that was caught in a bird trap near that city on February 16, 1938, by Primrose. Law and Williams found one at Tryon late in April, 1941.

Wetmore has furnished these records, made in 1939: "In the edge of the Dismal Swamp, 7 miles west of South Mills, an adult female was collected on April 14. One was observed near Sunbury in Gates County on April 19. An immature female was shot on Troublesome Creek, 7 miles south of Reidsville on September 23."

Burleigh reports: "I found it almost plentiful each fall about Asheville. It never occurred in flocks, single birds, rarely two together, being seen feeding alone, or with Song Sparrows, in thickets and stretches of underbrush bordering the open fields. The early migrants appeared the last of September, and for fully a month afterward one or more were seen daily. . . . My earliest date of arrival is September 26, 1932, my latest date for departure November 1, 1933. This species was never recorded here in spring, but it possibly occurs sparingly." It may be added that several specimens were collected by Burleigh to establish beyond question his identifications.

EASTERN SWAMP SPARROW.

Plate 47

Melospiza georgiana georgiana (Latham). [584]

Description. Crown reddish-brown, usually streaked with black; a grayish superciliary stripe; feathers of the back mostly rufous, streaked with black; underparts brownish-white with indistinct streaks, or none. A more rufous bird than the Song Sparrow, with shorter tail and unstreaked breast. Length 5.25-6.00; wing 2.30-2.50; spread 7.45-8.35; tail 2.40-2.70.

Range. Breeds from Alberta to Newfoundland and south to Nebraska and West Virginia. Winters from the Ohio Valley and New Jersey to central Mexico.

Range in North Carolina. Probably whole State in winter, but west of Orange and Moore Counties only recorded from Buncombe.

As the name implies, this is a bird of the wet lands. Where bogs or even small patches of fresh-water marsh and bushes are found, look for the Swamp Sparrow. It is hard to find and difficult to identify once it is seen. It is a stout, dark bird with a reddish cap, and occurs with us only as a winter visitor.

It arrives from the north in October, as indicated by the following observations. First seen at Asheville, October 2; at Chapel Hill, October 6; and at Raleigh, October 10. In spring it has been found at Asheville and Chapel Hill as late as May 21, and at Raleigh on May 19. Cairns regarded it only as a fall and spring migrant in Buncombe, but Wallace and Burleigh report it to be a winter resident about Asheville.

☆ Nine new records from the west extend from Highlands, The Smoky Mountains and Elkin east to Greensboro. ☆

EASTERN SONG SPARROW.

Plate 46

Melospiza melodia melodia (Wilson). [581]

Description. Crown rufous-brown with a median light line, a grayish superciliary stripe, and a brown streak backward from the eye; feathers of back rufous edged with gray and streaked centrally with black; underparts white, the breast and sides streaked with black, the spots on breast wedge-shaped and tending to coalesce into a larger spot in the center. Length 6.00-6.75; wing 2.45-2.80; spread 7.65-8.55; tail 2.60-3.00.

Range. Breeds from central Canada to northern Georgia. Winters from New England to southern Florida.

Range in North Carolina. Whole State in winter; may breed from Statesville westward.

Many Eastern Song Sparrows pass through our State in spring and autumn while others remain throughout the winter. Some of this subspecies may breed in the State. In central North Carolina Song Sparrows begin to appear about the first of October and usually leave for the north in April. This bird is a great singer and in some regions its song may be heard almost any day in the year. One has been known to render its song not less than two hundred times in an hour. On the nesting grounds, each pair of breeding birds pre-empts a territory and drives away all other Song Sparrows that approach.

Song Sparrows are found all over North America, and the species has been divided by ornithologists into twenty-six subspecies, three of which are now known to inhabit North Carolina. The Eastern Song Sparrow has long been supposed to breed in this State only in our mountain sections. It, therefore, was of much interest to read Grace Anderson's statement in *The Chat,* March, 1937, that they had nested at Statesville in 1933, and that the number of summer residents seemed to be increasing. In 1941, they were observed all summer at Winston-Salem by Bill Anderson and apparently bred there. Perhaps the species is extending its range eastward, but whether it is the *melodia* or *euphonia,* or both, that breed here is not as yet fully understood.

☆ Late spring dates are May 13th (Durham) and May 10th (Mount Olive). Nesting records are eastward to Guilford and Vance counties. ☆

ATLANTIC SONG SPARROW.

Melospiza melodia atlantica Todd. [581.t]

DESCRIPTION. "Similar to *Melospiza melodia melodia* of the Atlantic slope region, but much grayer above, with the blackish streaking more distinct and the reddish-brown feather-edging reduced to a minimum". . . Todd, *The Auk,* Vol. 41, January, 1924. (Original description.)

RANGE. Coastal regions from New York to North Carolina.

RANGE IN NORTH CAROLINA. Outer Banks, Virginia line to Ocracoke, and perhaps farther south.

In the first edition of this book (1919) the authors remarked on the curious fact that Song Sparrows should breed in what are looked upon as the hottest and the coolest parts of the State and not in the intervening country. In other words, why should some pass the summer in the mountains and others along the outer barrier islands while in much of central Carolina not one was to be found at that season? Pearson had seen some of these birds at Ocracoke, that evidently were breeding, back in June, 1903. Three years later, in July, 1906, Bishop found Song Sparrows nesting on Pea Island. Bruner and Feild saw some birds between Ocracoke and Cape Hatteras in July, 1913.

These birds remained simply "Song Sparrows" until 1924 when Todd described them as the Atlantic Song Sparrow and announced that it inhabited the coastal islands and the edge of the mainland from New York to North Carolina. The type specimen was taken on Smith's Island, Northumberland County, Virginia. Evidently some of these summer residents remain through the winter, as Wetmore records a female taken in Carteret County six miles northeast of Beaufort, November 15, 1939.

MISSISSIPPI SONG SPARROW.

Melospiza melodia euphonia Wetmore. [581.u]

Description. "Similar to *M. m. melodia* (Wilson) but distinctly darker above, being grayer, with the dark markings generally more distinct; sides of head grayer, less buffy or brown, tail averaging darker." Wetmore, *Smithsonian Misc. Coll.*, 95, (17), September 26, 1936. (Original description.)

Range. Chiefly Mississippi Valley region, southward in winter.

Range in North Carolina. Found throughout the State. Breeds in the mountains.

In 1912, Bangs described another form of this species from Enterprise, Florida, which he named the Mississippi Song Sparrow. Its breeding range is midwestern, but also extends into western North Carolina. Wetmore and J. J. Murray took one at Sturgills, June 5, 1936. In August the next year, Murray secured one at Blowing Rock and another at Bailey Camp. Specimens were found by Perrygo in June, 1939, near Murphy, Hayesville, Elk Knob, and West Jefferson, at elevations varying from 1,450 to 4,550 feet. Wetmore points out that Perrygo secured specimens in October, 1939, at Stony Point and Engelhard, and on November 6 at Greenville. They had perhaps migrated eastward from their breeding grounds in western North Carolina or Virginia.

This subspecies undoubtedly is the form of the Song Sparrow Pearson saw carrying food at Asheville, July 26, 1902, and building a nest near Montreat, Buncombe County, June 27, 1910. Song Sparrows in summer were later found in various mountain counties by Sherman, C. S. Brimley, Bruner, Laurent, and others. At the time we supposed these birds to be representatives of the subspecies *M. m. melodia*.

Burleigh reports that the Mississippi Song Sparrow breeds and is plentiful throughout the year in the Asheville region.

Genus CALCARIUS Bechstein.

LAPLAND LONGSPUR.

Plate 45, Fig. 19

Calcarius lapponicus lapponicus (Linnaeus). [536]

Description. Winter birds have the crown, part of ear-coverts, lower part of throat, and patch on breast, black, more or less obscured by whitish tips of feathers; upperparts light brownish streaked with dusky; outer tail-feathers with white blotches; claw of hind toe as long as, or longer than, the toe. Length 5.50-6.90; wing 3.50-3.90.

Range. Circumpolar regions, breeding far north. In North America winters mainly in northern half of United States.

Range in North Carolina. Appears to be a rare winter straggler.

The most characteristic feature of this species is the extremely long claw on the rear toe. It is a bird whose summer home is in the far North, many breeding where the last of the trees and the vast tundras meet.

In winter it wanders very occasionally as far south as Texas and on the Atlantic seaboard rarely to South Carolina. We know of only three localities in our State where it has been seen. The Brimleys found it at Raleigh on January 13 and 14, 1893 (one each day), and on February 20, 1895, when four were collected.

Skipping a period of forty-two years we again heard of it in North Carolina, this time at Cape Hatteras. In *The Chat*, for January, 1939, there was published a statement by E. L. Green, Jr., that on December 17, 1937, a number of Lapland Longspurs appeared in that region and remained in the neighborhood for nearly six weeks, or until January 26, 1938. As was the case with the Longspurs recorded by the Brimleys so long ago, these birds at Cape Hatteras were associating with a flock of Horned Larks.

Very recently we have been privileged to examine the notes Burleigh prepared on his bird studies in Buncombe County, beginning with 1930. The following quotation covers his observations of this rare and interesting visitor to that region. "I have but three records for the occurrence of this species here, so it is probably only a casual occurrence in these mountain valleys. Two birds were seen November 15, 1930, in the Mills River valley, one bird November 14, 1932, at Swannanoa, and another December 20, 1932, in the Mills River valley."

☆ An additional record is (6) in Iredell County, (Winter, 1946). ☆

Genus **PLECTROPHENAX** Stejneger.

EASTERN SNOW BUNTING.

Plate 45, Fig. 17

Plectrophenax nivalis nivalis (Linnaeus). [534]

DESCRIPTION. Winter birds are rusty-brown above, the back streaked with black; underparts white, washed with rusty on the breast and sides. Length 6.00-7.00; wing 4.00-4.50; tail 2.70-3.15.

RANGE. Circumpolar regions. In North America winters mainly in northern United States.

RANGE IN NORTH CAROLINA. Coastal region in winter, scarce.

The summer home of the Snow Bunting, like that of the Lapland Longspur, is in the far North, but as winter approaches it moves southward. In southern Canada and the northern States, it is seen often in large flocks that drift and whirl over the snow-clad fields in seemingly aimless wanderings, searching for the seeds upon which it feeds at this season of the year. Many people call it the "Snowflake." It is such a rarity as far south as North Carolina that when one comes to the attention of an ornithologist, the fact is usually published. From such records we have learned of nine occasions when it has appeared in the State.

Most of the times only a single bird has been observed, but Cottam in *The Auk*, October, 1937, p. 549, tells of two flocks at Kitty Hawk, January 25, 1937, that totaled at least 150 individuals. Mrs. R. C. Simpson saw a flock of at least 75 on Shark Shoal near Beaufort, December 11, 1939, and Walker saw 30 at Pea Island, November 27, 1939. It has been noted at Pea Island (Bishop and Walker); Beaufort (Gutsell); Oriental (Bainbridge); White Lake (Miss Grace Wheat); Lake Mattamuskeet (E. R. Greene); and at Clarkton, Bladen County, February 4, 1940 (Mrs. Grace L. Meares).

J. O. Stevenson and W. J. Howard reported four of these birds a mile northwest of Cape Hatteras, January 14, 1938. They were associated with about

thirty Horned Larks and all were disporting themselves on the sandy flats. The next year, W. M. Perrygo found specimens in Carteret County at Marshallberg on November 23, and at Atlantic two days later.

It may be noted that with the exception of those seen in Bladen County, all Snow Buntings recorded in North Carolina have been reported from the immediate neighborhood of the sea or the adjacent salt-water sounds.

☆ New occurrences include two at Pea Island and others at Pinehurst, Southern Pines, Pittsboro and Asheville. ☆

APPENDICES

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1941b. Glossy Ibis Nests Near Southport: *Chat,* Vol. V, No. 3, p. 47, May. From data communicated by Waters Thompson and Churchill Bragaw.

1941c. Records from All Over the State: *Chat,* Vol. V, No. 4, pp. 54-55, September.

Brimley, C. S., and Edward

1917. Bird-Lore's Seventeenth Christmas Census, Raleigh, North Carolina: *Bird-Lore,* Vol. XIX, No. 1, p. 27, January-February.

Brimley, C. S., and Roxie Collie.

1937. The Pied-billed Grebe Can Walk. *Chat,* Vol. I, Nos. 5-6, pp. 6-7.

Brimley, C. S., and John H. Grey, Jr.

1939. Carolina Region in Bird-Lore's "The Season": Vol. CXXX, pp. 6-7, November-December.

1940. Carolina Region in Bird-Lore's "The Season": Vol. CXXXI, pp. 213-214, March-April; Vol. CXXXII, pp. 302-303, May-June; Vol. CXXXIII, pp. 383-384. July-August; Vol. CXXXIV, pp. 461-463, September-October; Vol. CXXXV, pp. 575-576; November-December.

1941. Carolina Region, Audubon Magazine's "The Season": Vol. CXXXVI, pp. 225-226, March-April; Vol. CXXXVII, pp. 309-310, May-June; Vol. CXXXVIII, pp. 389-390, July-August; Vol. CXXXIX, pp. 469-470, September-October; Vol. CXL, pp. 567-568, November-December.

Brimley, C. S., and Franklin Sherman, Jr.

1908. Notes on the Life-zones in North Carolina: *Jour. Eli. Mitch. Sci. Soc.,* Vol. XXIV, No. 1, pp. 14-22, May.

Brimley, H. H.

1888. With Rope and Irons: *O and O,* Vol. XIII, p. 150, October.

1890a. Down the Creek After Eggs: *O and O,* Vol. XV, p. 38, March.

1890b. Footrule and Scales: *O and O,* Vol. XV, p. 130, September.

1892a. *Pavoncella pugnax* in North Carolina: *Auk,* Vol. IX, No. 3, pp. 299-300, July.

1892b. Notes from Beaufort, North Carolina: *O and O,* Vol. XVII, p. 106, July.

1907. White-winged Crossbill at Raleigh, North Carolina: *Auk,* Vol. XXIV, No. 2, p. 220, April.

1910. The Northern Phalarope in Bladen County, North Carolina: *Auk,* Vol. XXVII, No. 2, p. 206, April.

1911. Local Names of Waterfowl: *Forest and Stream,* Vol. LXXVII, No. 12, p. 453, September 16.

1912a. Brown Pelican on Pamlico Sound and at Durham, North Carolina: *Auk,* Vol. XXIX, No. 4, p. 531, October.

1912b. Ocracoke Water Bird Notes: *Auk,* Vol. XXIX, No. 4, p. 538, October.

1919. *Birds of North Carolina* (see Pearson, T. Gilbert, C. S. and H. H. Brimley.)

1924. White-fronted Goose in North Carolina: *Auk,* Vol. XLI, No. 2, pp. 339-340, April.

1926. The Sooty Tern in North Carolina: *Auk,* Vol. XLIII, No. 4, p. 535, October.

1927a. Great White Heron in North Carolina: *Auk,* Vol. XLIV, No. 1, p. 97, January.

1927b. Lapwing (*Vanellus vanellus*) in North Carolina: *Auk,* Vol. XLIV, No. 2, p. 248, April.

1927c. Horned Grebe in Breeding Plumage in North Carolina: *Auk,* Vol. XLIV, No. 3, p. 415, July.

1927d. Rare Birds in North Carolina: *Auk,* Vol. XLIV, No. 3, pp. 427-428, July.

1934. Occurrence of the Pomarine Jaeger in North Carolina: *Auk,* Vol. LI, No. 2, pp. 233-234, April.

1935a. Blue Goose and Glaucous Gull in North Carolina: *Auk,* Vol. LII, No. 4, pp. 443-444, October.

1935b. An Unusual Gathering of Marsh Hawks in Central North Carolina: *Auk,* Vol. LII, No. 4, pp. 445-446, October.

1935c. Record of Snow Bunting (*Plectrophenax n. nivalis*) in North Carolina: *Auk,* Vol. LII, No. 4, p. 460, October.

1937. The Battery Island Heron Colony: *Chat,* Vol. II, Nos. 5 and 6, pp. 41-43, May-June.

1938a. Notes from North Carolina: *Auk,* Vol. LV, No. 1, pp. 130-131, January.

1938b. A Sketch of the History of Wild-life Conservation in North Carolina: *North Carolina Wild-life Conservation,* North Carolina Department of Conservation and Development, Vol. II, No. 7, 8 and 9, pp. 3-6, 3-7 and 13, 3-7, July, August, and September.

1939. The Royal Terns of Royal Shoal: *Chat,* Vol. III, Nos. 9 and 10, p. 70, September-October.

1940a. The Black Skimmer in North Carolina: *North Carolina Wild-life Conservation,* North Carolina Department of Conservation: Vol. IV, No. 9, pp. 10-13, September.

1940b. The Sooty Shearwater in North Carolina: *Chat,* Vol. IV, Nos. 11 and 12, pp. 105-106, November-December.

1941a. Unusual North Carolina Records: *Auk,* Vol. LVIII, No. 1, pp. 106-108. Notes on 28 forms.

1941b. Wildfowl: *Chat,* Vol. V, No. 1, pp. 5-7, January.

BRIMLEY, H. H. AND C. S.

1884a. Notes from Middle North Carolina: *O and O,* Vol. IX, p. 127, October.

1884b. Notes from Middle North Carolina: *O and O,* Vol. IX, p. 145, December. Records Connecticut Warbler from the State.

1885a. Notes from Raleigh, North Carolina: *O and O,* Vol. X, p. 14, January.

1885b. Notes from North Carolina: *O and O,* Vol. X, pp. 29-30, February.

1885c. Notes from North Carolina: *O and O,* Vol. X, pp. 63-64, April.

1885d. Notes from Raleigh, North Carolina: *O and O,* Vol. X, pp. 79-80, May.

1885e. Winter Birds of Raleigh, North Carolina: *O and O,* Vol. X, p. 128, August. Records 72 species.

1885f. Summer Birds of Raleigh, North Carolina: *O and O,* Vol. X, pp. 143-144, September. Enumerates 82 species.

1885g. Fall migrants at Raleigh, North Carolina: *O and O,* Vol. X, December.

1891. Notes from Raleigh, North Carolina: *O and O,* Vol. XVI, p. 125, August.

BROOKS, MAURICE

1942. Birds at the Extremities of Their Ranges: *Wilson Bulletin,* Vol. LIV, No. 1, pp. 12-16, March.

Brown, Roy M.

1914. Bird-Lore's Fourteenth Christmas Census, Vicinity of Boone: Vol. XVI, No. 1 p. 40, January-February.

1916. Bird-Lore's Sixteenth Christmas Census, Boone: *Bird-Lore,* Vol. XVIII, No. 1, p. 30, January-February.

1919. Bird-Lore's Nineteenth Christmas Census, Boone: *Bird-Lore,* Vol. XXI, No. 1, p. 39, January-February.

Brown, Roy M., and Theodore Andrews

1918. Bird Notes from Boone and Lexington: *Bird-Lore,* Vol. XX, No. 1, p. 40, January-February.

Bruner, S. C. and C. S. Brimley

1916. The Spring Migration of 1915 at Raleigh, North Carolina. *Bird-Lore,* Vol. XVIII, No. 2, pp. 85-87, March-April.

Bruner, S. C., and Alexander L. Feild

1912. Notes on the Birds Observed on a Trip Through the Mountains of Western North Carolina: *Auk,* Vol. XXIX, No. 3, pp. 368-377, July.

Burleigh, Thomas D.

1933. The Present Status of Brewer's Blackbird in the Southeast *Wilson Bulletin,* Vol. XLV, No. 3, pp. 111-113, September. Is a regular, but not common transient near Asheville.

1934. Description of a New Sub-species of Yellow-throat from Georgia: *Proc. Biol. Soc. Wash.,* Vol. XLVII, pp. 21-22. Describes *Geothlypis trichas typhicola* from Georgia and includes a number of North Carolina records.

1935a. Two New Birds from the Southern Appalachians: *Proc. Biol. Soc. Wash.,* Vol. XLVIII, pp. 61-62. Describes Southern Winter Wren and Southern Brown Creeper.

1935b. The Present Status of the Olive-sided Flycatcher as a Breeding Bird in Western North Carolina and Eastern Virginia: *Wilson Bulletin,* Vol. XLVII, No. 2, p. 165, June.

1936. Egg-laying by the Cowbird During Migration: *Wilson Bulletin,* Vol. XLVIII, part 1, No. 1, pp. 13-16, March.

1937. Bird Life on the North Carolina Coast: Auk, Vol. LIV, No. 4, pp. 452-460, October.

1941. Bird Life on Mt. Mitchell: *Auk,* Vol. LVIII, No. 3, pp. 334-345, July.

Cairns, John S.

1887. List of the Birds of Buncombe County, North Carolina: *O and O,* Vol. XII, pp. 3-6, January. Enumerates 169 species.

1889. The Summer Birds of Buncombe County, North Carolina: *O and O,* Vol. XIV, pp. 17-23, February. Enumerates 123 species.

1902. List of the Birds of Buncombe County, North Carolina: (List dated July 16, 1891.) Privately printed. Lists 204 species.

Carson, Hampton L., Jr.

1940. Red Crossbill in North Carolina in Summer: *Auk,* Vol. LVII, No. 3, p. 421, July. Fifteen observed on summit of Mt. Mitchell, June 21, 1938.

Chapman, F. M.

1899. The Distribution and Relationship of *Ammodramus maritimus* and its Allies: *Auk,* Vol. XVI, No. 1, pp. 1-12, January.

The Chat

1937. The 1937 Christmas Census, Niagara, Pinebluff, Southern Pines, Washington, Raleigh, and Chapel Hill: Vol. II, No. 1, pp. 7-9.

1938. The 1938 Christmas Census, Winston-Salem, Greensboro, Brevard, Arden, Rocky Mount, Southern Pines, Chapel Hill, Raleigh, and Washington: Vol. II, Nos. 11 and 12, pp. 75-79, November-December.

1940. Christmas Censuses for 1939, Winston-Salem, Washington, Rocky Mount, Micaville, Raleigh, Arden, Greensboro, Healing Springs, Southern Pines, Windom, Chapel Hill, Pea Island, and Great Smokies, Tenn.: Vol. IV, No. 1, pp. 5-12.

1941. Christmas Census, Durham, Great Smokies, Tenn., Chapel Hill, Red Springs, Arden, Rocky Mount, Raleigh, and Winston-Salem: Vol. V, No. 1, pp. 8-12, January.

1942. The Annual Christmas Bird Count, 1941, Great Smokies, Arden, Charlotte, Winston-Salem, Greensboro, Durham, Chapel Hill, Raleigh, Southern Pines, Rocky Mount, Washington, and New Holland: Vol. VI, No. 1, pp. 11-16, January.

CLARK, AUSTIN H. AND LEILA F.

1934. The Golden Eagle in North Carolina: *Auk,* Vol. LI, No. 1, p. 80, January.

COGGINS, HERBERT L.

1901. The Western Savanna Sparrow in North Carolina: *Auk,* Vol. XVIII, p. 397, October.

COKER, COIT M.

1933. Eastern Henslow's Sparrow in North Carolina in Summer: *Auk,* Vol. L, No. 2, p. 225, April

COLES, RUSSELL J.

1924a. Recent Observations of the Long-billed Curlew at Cape Lookout, North Carolina: *Auk,* Vol. XLI, No. 1, pp. 153-154, January.

1924b. Snow Bunting in North Carolina: *Bird-Lore,* Vol. XXVI, No. 1, p. 65, January-February.

1925. Sea-birds at Cape Lookout, North Carolina: *Auk,* Vol. XLII, No. 1, pp. 123-134, January. Records Audubon's Shearwater, Sooty Shearwater, and Red Phalarope.

CONOVER, H. B.

1941. A Study of the Dowitchers: *Auk,* Vol. LVIII, No. 3, pp. 376-380, July. All three forms were represented by specimens from North Carolina.

COOKE, WELLS W.

1904a. The Effect of Altitude on Bird Migration: *Auk,* Vol. XXI, No. 3, pp. 338-341, July.

1904b. Distribution and Migration of North American Warblers: *United States Department of Agriculture, Biol. Survey, Bulletin,* No. 18.

1906. Distribution and Migration of North American Ducks, Geese, and Swans: *United States Department of Agriculture, Biol. Survey, Bulletin,* No. 26.

1910. Distribution and Migration of North American Shore-birds: *United States Department of Agriculture, Biol. Survey, Bulletin,* No. 35.

1913. Distribution and Migration of North American Herons and Their Allies: *United States Department of Agriculture, Biol. Survey, Bulletin,* No. 45, May 24, 1913.

1914. Distribution and Migration of North American Rails and Their Allies: *United States Department of Agriculture, Biol. Survey, Bulletin,* No. 128, September 25, 1914.

COTTAM, CLARENCE

1933a. Winter Records for the Coastal Region of North Carolina: *Auk,* Vol. L, No. 2, pp. 231-232, April.

1933b. The Blue Goose in North Carolina: *Auk,* Vol L. No. 3, p. 353, July.

1934a. Summer Bird Records from North Carolina: *Auk,* Vol. LI, No. 1, pp. 94-96, January.

1934b. Possible Extension of Regular Winter Range of the Great Black-backed Gull: *Auk,* Vol. LI, No. 3, p. 376, July.

1935a. Winter Notes from Coastal North Carolina: *Auk,* Vol. LII, No. 3, pp. 318-319, July.

1935b. Blue and Snow Geese in the Eastern United States in the Winter of 1934-1935 with Notes on Their Food Habits: *Auk,* Vol. LII, No. 4, pp. 432-441, October.

1936. Status of the Black-backed Gull: *Auk,* Vol. LIII, No. 3, pp. 332-333, July.

1938. Razor-billed Auk at Currituck Light: *Chat,* Vol. II, No. 2, p. 11, February.

COTTAM, CLARENCE; A. L. NELSON; AND C. S. WILLIAMS

1937. Uncommon Winter Birds in Coastal North Carolina: *Auk,* Vol. LIV, No. 4, pp. 548-549, October.

CRAIGHILL, FRANCES H.

1937a. Recent Additions to the North Carolina Check List: *Chat,* Vol. I, No. 1, p. 5, March.

1937b. Field Notes: *Chat,* Vol. I, No. 2, p. 8, April. Records Cowbirds from Roanoke Island in June.

1937c. Forster's Tern at Rocky Mount: *Chat,* Vol. I, Nos. 5 and 6, p. 7, July-August.

1938a. Migration Stations: *Chat,* Vol. II, Nos. 3 and 4, pp. 33-35, March-April.

1938b. Gull-billed Terns Breeding on Pea Island: *Chat,* Vol. II, Nos. 5 and 6, pp. 43-46, May-June.

1938c. More About the Purple Martins: *Chat,* Vol. II, Nos. 7 and 8, pp. 54-56, July. August.

1940a. Rocky Mount Field Notes: *Chat,* Vol. IV, Nos. 11 and 12, p. 112, November-December.

1940b. Pea Island in Early September: *Chat,* Vol. IV, Nos. 11 and 12, pp. 111-112, November-December.

1941. Nesting of the Yellow-crowned Night Heron Near Rocky Mount, North Carolina: *Chat* Vol. V, No. 4, pp. 61-62, September.

1942. Craighill's Last Letter About North Carolina Birds: *Chat,* Vol. VI, No. 2, pp. 25-26, March.

COUES, DR. ELLIOTT

1871. Notes on the Natural History of Fort Macon, North Carolina, and Vicinity. (No. 1) Mammals, Birds, and Reptiles: *Proc. Ac. Nat. Sci., Phila.,* May 2. Contains notes on 122 species of birds.

1897. Characters of *Dendroica caerulescens cairnsi*: *Auk,* Vol. XIV, No. 1, pp. 96-97, January.

DANIEL, JOHN W., JR.

1902. The Summer Birds of the Great Dismal Swamp: *Auk,* Vol. XIX, No. 1, pp. 15-18, January.

DAVIS, MINOT.

1893. Bird Notes from Western North Carolina: *O and O,* Vol. VIII, p. 113, August.

DINGLE, E., AND ALEXANDER SPRUNT, JR.

1932. A New Marsh Wren from North Carolina: *Auk,* Vol. XLIX, pp. 454-455. Describes Wayne's Marsh Wren (*Telmatodytes palustris waynei*).

DUVAL, ALLEN J.
1937. Birds Observed on the Coast of Virginia and North Carolina: *Auk,* Vol. LIV, No. 4, pp. 461-463, October.

DWIGHT, JONATHAN, JR.
1890. The Horned Larks of North America: *Auk,* Vol. VII, No. 2, pp. 138-158. April.

EMMET, ROBERT T.
1926. Black-necked Stilt in Winter on the North Carolina Coast: *Auk,* Vol. XLIII, No. 2, pp. 234-235, April.

FEILD, A. L.
1912. Notes on the Birds of Chapel Hill, North Carolina; with Particular Reference to Their Migrations: *Jour. Eli. Mitch. Sci. Soc.,* Vol. XXVIII, No. 1, pp. 16-33, May.

FISHER, A. K.
1890. The Appearance of the Razor-billed Auk (*Alca torda*) on the Coast of North Carolina: *Auk,* Vol. VII, No. 2, p. 203, April.

FLEISHER, EDWARD
1920. Notes on the Birds of Southeastern North Carolina: *Auk,* Vol. XXXVII, No. 4, pp. 565-572. October. 98 species listed.

FOX, WADE, JR.
1938. Nesting of Brown-headed Nuthatch at Greensboro: *Chat,* Vol. II, Nos. 5 and 6, pp. 39-40, May-June.

FUERTES, LOUIS AGASSIZ
1915. Another European Widgeon in Virginia: *Auk,* Vol. XXXII, No. 3, p. 367, July. Gives a North Carolina record for Currituck County.

GABRIELSON, IRA N.
1941. Pectoral Sandpiper in North Carolina in Winter: *Auk,* Vol. LVIII, No. 3, p. 405, July. Very emaciated specimen taken at Lake Mattamuskeet, December 6, 1940.

GANIER, ALBERT F.
1934. Status of the Duck Hawk in the Southeast: *Auk,* Vol. LI, No. 3, pp. 371-373, July.
1925. The Starling Breeding in Tennessee, North Carolina, and Virginia: *Wilson Bulletin,* Vol. XXXVII, No. 3, pp. 174-175, September.

GREEN, CHARLOTTE HILTON
1933. *Birds of the South*: University Press, Chapel Hill, North Carolina. pp. 277, colored plates 32, figures 32. Lists and describes the winter birds.

GREEN, EDWIN L., JR.
1939. The Birds of Cape Hatteras: *Chat,* Vol. III, No. 1, pp. 1-20, January. 171 species listed.

GREENE, EARLE R.
1935a. Interesting Winter Notes at Mattamuskeet Wild Life Refuge (Hyde County, North Carolina): *Auk,* Vol. LII, No. 3, pp. 319-320, July.
1935b. The White Pelican (*Pelecanus erythrorhynchos*) on Lake Mattamuskeet Wild Life Refuge (Hyde County, North Carolina): *Auk,* Vol. LII, No. 4, pp. 442-443, October.
1936a. Arkansas Kingbird (*Tyrannus verticalis*) at Lake Mattamuskeet, North Carolina: *Auk,* Vol. LIII, No. 1, p. 83, January.

1936b. American Rough-legged Hawk (*Buteo lagopus sanctijohannis*) in North Carolina: *Auk,* Vol. LIII, No. 2, p. 209, April.

1936c. Unusual Nesting Locations in Lake Mattamuskeet Wild Life Refuge: *Bird-Lore,* Vol. XXXVIII, pp. 236-237.

1937. Birds of Lake Mattamuskeet, North Carolina: *Chat,* Vol. I, Nos. 7 and 8, pp. 45-58, September-October.

GREY, JOHN H., JR.

1937a. Flamingoes in North Carolina: *Chat,* Vol. I, Nos. 9 and 10, p. 61.

1937b. Amateur Adds New Subspecies to North Carolina Check-List: *Chat,* Vol. I, Nos. 9 and 10, pp. 64-65. Willow Thrush picked up dead by G. M. Garren.

1937c. Lawrence's Warbler Again in North Carolina: *Chat,* Vol. II, p. 51. Reported by E. M. Hodel of Elkin, at Ronda, May 8, 1938, two specimens observed.

1940a. Unusual Records in 1939: *Chat,* Vol. IV, No. 1, pp. 1-5, January.

1940b. Banding Royal Terns: *Chat,* Vol. IV, Nos. 11 & 12, pp. 107-109, November-December.

1941. The Breeding Birds of Pea Island: *Chat,* Vol. V, No. 4, pp. 50-54. September.

GREY, JOHN H., JR., AND C. S. BRIMLEY

1938. Recent Additions to the North Carolina Check-List: *Chat,* Vol. II, Nos. 11 and 12, pp. 72-74, November-December:

GREY, JOHN H., JR., AND J. J. MURRAY

1938. Field Notes: *Chat,* Vol. II, Nos. 7 and 8, pp. 56-57, July-August.

1941. Cowbird on the Virginia and North Carolina Coasts: *Auk,* Vol. LVIII, No. 1, pp. 101-102, January.

GRINNELL, GEO. BIRD

1919. The Ruddy Sheldrake on the Atlantic Coast: *Auk,* Vol. XXXVI, No. 4, pp. 561-562, October. In Currituck County, North Carolina.

GRISCOM, LUDLOW.

1925. King Eider in North Carolina: *Auk,* Vol. XLII, No. 2, p. 264, April.

GUTSELL, JAMES S.

1931. Sooty Shearwater and Audubon's Shearwater in North Carolina: *Auk,* Vol. XLVIII, No. 1, pp. 105-106, January.

HALL, EARL H.

1933. Notes from Ten Years of Bird Study at Greensboro, North Carolina: *Jour. Eli. Mitch. Sci. Soc.,* Vol. XLIX, No. 1, pp. 113-118, September.

HELMUTH, W. T.

1920. Extracts from Notes Made While in Naval Service: *Auk,* Vol. XXXVII, No. 2, pp. 255-261, April. Contains record of Iceland Gull off coast of North Carolina.

HODEL, EARL M.

1940. Birds of Elkin, North Carolina: *Chat,* Vol. IV, No. 10, pp. 96-104, October. Lists 141 species.

HOLLAND, W. J.

1923. The Passenger Pigeon (*Ectopistes migratorius*) in North Carolina: *Auk,* Vol. XL, No. 3, pp. 530-532, July.

HOLMES, J. S.

1941. Birds That Hunt and Are Hunted: *Chat,* Vol. V, No. 1, pp. 1-4, January.

HOWARD, WILLIAM JOHNSTON
1940. Wintering of the Greater Snow Geese: *Auk,* Vol. LVII, No. 4, pp. 523-531, October.

HOWE, REGINALD HEBER, JR.
1902. The European Widgeon in North Carolina: *Auk,* Vol. XIX, No. 1, p. 76, January.

HUBER, WHARTON
1927. The European Teal in North Carolina: *Auk,* Vol. XLIV, No. 1, p. 95, January.

JEFFRIES, W. A. AND J. A.
1889. Notes on Western North Carolina Birds: *Auk,* Vol. VI, No. 2, pp. 119-122, April.

JENNESS, P. M.
1925. Kirtland's Warbler in North Carolina: *Bird-Lore,* Vol. XXVII, No. 4, pp. 252-253, July-August. (Title is a misnomer, the bird was actually observed at Gaffney, South Carolina.)

"J. M. W."
1888. The Parula Warbler, Its Nest and Eggs: *O and O,* Vol. XIII, pp. 3 *et seq.,* January.

JOHNSON, J. M., J. T. NICHOLS, AND LUDLOW GRISCOM
1917a. Bird-Lore's Seventeenth Christmas Census, Currituck Sound: *Bird-Lore,* Vol. XIX, No. 1, pp. 26-27, January-February.
1917b. Notes from North Carolina: *Auk,* Vol. XXXIV, No. 2, pp. 219-220, April.

JONES, JOSEPH C.
1911. Bird-Lore's Eleventh Bird Census, Louisburg, North Carolina: Vol. XIII, No. 1, p. 33, January-February.
1914. Bird-Lore's Fourteenth Christmas Census, Louisburg, North Carolina: Vol. XVI, No. 1, p. 40, January-February.

KOBBE, FREDERICK WILLIAM
1912. Shore-bird Notes: *Auk,* Vol. XXIX, No. 1, p. 108, January.

LADD, S. B.
1892. Nesting of the Black-throated Blue Warbler in Buncombe County, North Carolina: *O and O,* Vol. XVII, pp. 129-130, September.

LAURENT, PHILIP.
1892. Breeding Habits of *Junco hyemalis carolinensis*: *O and O,* Vol. XVII, p. 116, August.

LAY, GEORGE B.
1937. New Heron Rookeries in North Carolina: *Chat,* Vol. I, Nos. 9 and 10, p. 7. Main new one at Quitsna, Bertie County, where some 500 pairs of Little Blues nested.

LOOMIS, LEVERETT M.
1901. The Raven in Polk County, North Carolina: *Auk,* Vol. XVIII, No. 1, p. 108, January.

LOWERY, GEORGE H., JR.
1940. Geographical Variation in the Carolina Wren: *Auk,* Vol. LVII, No. 1, pp. 95-104, January.

MACNEILLE, MARION C.
1932. Anhinga Nesting in North Carolina: *Auk,* Vol. XLIX, No. 2, p. 213, April.

Maither, Mary M.

1930. Report of State Audubon Societies: *Bird-Lore,* Vol. XXXII, No. 6, p. 548, November-December. Includes Southern Pines Bird Club.

1931. Report of the Affiliated Organizations: *Bird-Lore,* Vol. XXXIII, No. 6, pp. 517-518. Includes Southern Pines Bird Club.

Mayr, Ernst

1935. Avocet Recorded for North Carolina: *Auk,* Vol. LII, No. 2, p. 185, April.

McAtee, W. L.

1911. Local Names of Waterfowl and Other Birds: *Forest and Stream,* Vol. LXXVII, No. 5, pp. 172-174 and 196-197, July 29.

1917. Some Local Names of Birds: *Wilson Bulletin,* Vol. XXIX, No. 1, pp. 74-95, March. *Harelda hyemalis.* Knock-molly—Cape Hatteras, North Carolina (Brimley).

1926. Notes on North Carolina Waterfowl: *Auk,* Vol. XLIII, No. 2, pp. 251-252, April. Records European Widgeon and Hutchins' Goose.

1933. The Meaning of Bird Control: *Wilson Bulletin,* Vol. XLV, No. 1, pp. 3-9, March.

McLaughlin, R. B.

1887a. The Home of the Carolina Wren: *O and O,* Vol. XII, p. 109, July.

1887b. Nesting of the Pine-creeping Warbler (at Statesville, North Carolina): *O and O,* Vol. XII, p. 171, October.

1887c. Nesting of the Yellow-throated Warbler: *O and O,* Vol. XII, p. 171, October.

1887d. Nesting of the Louisiana Water-Thrush: *O and O,* Vol. XII, p. 174, October.

1887e. Where the Nest Complement Is Two Eggs, an Interval of More Than a Day Elapses Between Their Being Laid: *O and O,* Vol. XII, p. 198, December.

1887f. Double Nest of the Parula Warbler: *O and O,* Vol. XII, p. 206, December.

1888a. Following the Logcock: *O and O,* Vol. XIII, p. 40, March.

1888b. Nesting of the Tufted Titmouse: *O and O,* Vol. XIII,, p. 61, April.

1888c. Nesting of the Mountain Solitary Vireo: *O and O,* Vol. XIII, p. 113, August.

Metcalf, Z. P.

1921. Notes from North Carolina: *Wilson Bulletin,* Vol. XXXIII, No. 1, p. 33, March.

1922. The Birds of the Cape Fear Region of the North Carolina Coast: *Wilson Bulletin,* Vol. XXXIV, No. 1, pp. 28-34, March. Lists 88 species from the east side of the Cape Fear River below Wilmington, Fleisher's 1920 list was from the west side in Brunswick County.

Morrell, C. H.

1902. The Occurrence of the Prairie Horned Lark at Southern Pines, North Carolina: *Auk,* Vol. XIX, No. 3, p. 289, July.

Murphy, Robert Cushman, and William Vogt

1933. The Dovekie Influx of 1932: *Auk,* Vol. L, No. 3, pp. 325-349, July. North Carolina records on page 332.

Murray, J. J.

1930a. Late Nesting of the Cedar Waxwing in North Carolina: *Auk,* Vol. XLVII, No. 1, pp. 88-89, January. Nested near Blowing Rock in August.

1930b. Notes from Eastern North Carolina: *Auk,* Vol. XLVII, No. 4, pp. 575-576, October.

1932. Notes from Western North Carolina: *Auk,* Vol. XLIX, No. 1, pp. 103-104, January.

1933a. Notes from Western North Carolina: *Auk,* Vol. L, No. 2, p. 232, April.

1933b. Winter Notes from Back Bay, Virginia and North Carolina: *Auk,* Vol. L, No. 3. p. 368, July.

1935. Breeding of Swainson's Warbler in Robeson County, North Carolina: *Auk,* Vol. LII, No. 4, p. 459, October.

1936. Laughing Gull in the North Carolina Mountains: *Auk,* Vol. LIII, No. 1, pp. 81-82, January.

1937a. Notes from Eastern North Carolina: *Chat,* Vol. I, No. 1, pp. 7-8.

1937b. Field Notes, Blowing Rock: *Chat,* Vol. I, Nos. 9 and 10, pp. 67-68. Records *Melospiza m. euphona* and *Colaptes auratus luteus.*

1937c. Prairie Horned Lark Breeding at Blowing Rock: *Chat,* Vol. I, Nos. 9 and 10, p. 63, November-December.

1940. A New Breeding Sub-species for North Carolina: *Chat,* Vol. IV, Nos. 8 and 9, p. 90, August-September.

NICHOLS, JOHN TREADWELL

1913. Notes on Offshore Birds: *Auk,* Vol. XXX, No. 4, p. 505, October. Includes the Cape Hatteras Region.

1914. Brown Pelican Regular Off North Carolina: *Auk,* Vol. XXXI, No. 1, p. 100, January.

1917. Man-o'-war-bird, etc. on the North Carolina Coast: *Auk,* Vol. XXXIV, No. 4, p. 476, October.

NICHOLS, JOHN T., AND LUDLOW GRISCOM.

1915. Currituck Sound and Beach to Snowden, North Carolina: *Bird-Lore,* Vol. XVII, No. 1, p. 36, January-February.

1916. Orange-crowned Warbler in North Carolina: *Auk,* Vol. XXXIII, No. 1, p. 78, January.

N(ORRIS), J. P.

1888. A Series of Eggs of the Black and White Warbler: O *and* O, Vol. XIII, p. 183, December.

1889a. A Series of Eggs of the Chuck-will's-widow: O *and* O, Vol. XIV, p. 116, August.

1889b. A Series of Eggs of the American Woodcock: O *and* O, Vol. XIV, p. 119, August.

1889c. A Series of Eggs of the Pine Warbler: O *and* O, Vol. XIV, p. 130, September.

1890a. A Series of Eggs of the Louisiana Water-Thrush: O *and* O, Vol. XV, p. 53, April.

1890b. A Series of Eggs of the Worm-eating Warbler: O *and* O, Vol. XV, p. 118, August.

1890c. A Series of Eggs of the Tufted Titmouse: O *and* O, Vol. XV, p. 147, October.

1891. A Series of Eggs of the Maryland Yellow-throat: O *and* O, Vol. XVI, p. 150, October.

1892. A Series of Eggs of the Ovenbird: O *and* O, Vol. XVII, p. 65, May.

OBERHOLSER, HARRY C.

1905. Notes on the Mammals and the Summer Birds of Western North Carolina: Published for the use of students by the Biltmore Forest School, September.

1919a. *Gavia stellata* in the Mountains of Western North Carolina: *Wilson Bulletin,* Vol. XXXI, No. 1, p. 26, March.

1919b. The Migration of North American Birds, VIII. Ravens: *Bird-Lore,* Vol. XXI, No. 1, pp. 23-24, January-February. IX. Crows: *Bird-Lore,* Vol. XXI, No. 2, pp. 100-102, March-April. X. Blue Jay, Stellar's Jay, and Green Jay: *Bird-Lore,* Vol. XXI, No. 3, pp. 170-171, May-June.

1919c. *Dendroica cerulea* in Western North Carolina in Summer: *Wilson Bulletin,* Vol. XXXI, No. 2, p. 64, June.

1920. Migration of North American Birds. XIII. European Starling and Bobolink: *Bird-Lore,* Vol. XXII, No. 4, pp. 213-216, July-August.

1922. The Migration of North American Birds. XVIII, Red-winged Blackbirds: *Bird-Lore,* Vol. XXIV, No. 2, pp. 85-88. XX. Baltimore Oriole: *Bird-Lore,* Vol. XXIV, No. 6, pp. 339-341, November- December.

1923. The Migration of North American Birds. XXI. Orchard Oriole: *Bird-Lore,* Vol. XXV, No. 2, pp. 119-120, March-April.

1924. The Migration of North American Birds. XXIV. Ruby-throated Hummingbird: *Bird-Lore,* Vol. XXVI, No. 2, pp. 108-110, March-April.

1926. The Migration of North American Birds. XXIX. The Swifts: *Bird-Lore,* Vol. XXVIII, No. 1, pp. 9-13, January-February. XXX. Chuck-will's-widow and Whip-poor-will: *Bird-Lore,* Vol. XXVIII, No. 2, pp. 117-120. XXXI. The Nighthawks: *Bird-Lore,* Vol. XXVIII, No. 4, pp. 255-261, July-August.

1927. The Migration of North American Birds. XXXIII. The Flickers: *Bird-Lore,* Vol. XXIX, No. 2, pp. 110-114. XXXIV. Red-bellied, Golden-fronted, and Gila Woodpeckers: *Bird-Lore,* Vol. XXIX, No. 4, p. 260, July-August. XXXV. Red-headed and Lewis's Woodpeckers: *Bird-Lore,* Vol. XXIX, No. 6, pp. 411-413.

1928. The Migration of North American Birds. XXXVII. Yellow-bellied and Red-breasted Sapsuckers: *Bird-Lore,* Vol. XXX, No. 4, pp. 253-257, July-August.

1929. The Migration of North American Birds. XL. Arziona and Red-cockaded Woodpeckers: *Bird-Lore,* Vol. XXXI, No. 4, pp. 255-256, July-August.

1930. The Migration of North American Birds. XLII. Hairy and Downy Woodpeckers: *Bird-Lore,* Vol. XXXII, No. 2, pp. 120-123, March-April. XLIII. Ivory-billed Woodpecker: Vol. XXXII, No. 4, pp. 265-267, July-August. XLIV. The Kingfishers: Vol. XXXII, No. 6, pp. 414-417, November-December.

1931. The Migration of North American Birds. XLVI. Yellow-billed, Mangrove, and Black-billed Cuckoos: *Bird-Lore,* Vol. XXXIII, No. 4, pp. 249-254, July-August.

1932. The Migration of North American Birds. L. Carolina Paroquet: *Bird-Lore,* Vol. XXXIV, No. 5, p. 328, September-October.

1934. A Revision of the North American House Wrens: *Ohio Jour. Sc.,* Vol. XXXIV, No. 2, pp. 86-96, March.

1937. A Revision of the Clapper Rails (*Rallus longirostris Boddaert*): *Proc. of the U. S. Nat. Mus.,* Vol. LXXXIV, No. 3018, pp. 318-354.

ODUM, EUGENE P.

1930. Back-yard Ornithology: *Bird-Lore,* Vol. XXXII, No. 6, pp. 419-420, November-December.

1931. Notes on the Nesting Habits of the Hooded Warbler: *Wilson Bulletin,* Vol. XLIII, No. 4, pp. 316-317, December.

1932. Notes from Chapel Hill, North Carolina: *Auk,* Vol. XLIX, No. 3, pp. 362-363, July.

1933a. A Brewster's Warbler in North Carolina: *Auk,* Vol. L, No. 1, p. 116, January.

1933b. Spring Occurrence of the Tennessee Warbler in North Carolina: *Auk,* Vol. L, No. 1, p. 117, January.

1938. Late Nesting Date for Yellow-billed Cuckoo: *Chat,* Vol. II, Nos. 9 and 10. pp. 63-64, September-October.

ODUM, EUGENE P., AND EDMUND R. TAYLOR

1934. 1933 Notes from Chapel Hill: *Auk,* Vol. LI, No. 3, pp. 396-397, July.

ODUM, EUGENE; EDMUND TAYLOR; COIT COKER; AND ARNOLD BREGKENRIDGE.

1935. The Birds of Chapel Hill, North Carolina: *Jour. Eli. Mitch. Sci. Soc.,* Vol. LI, No. 2, pp. 312-340, December. List 195 species.

OGBURN, CHARLTON, JR.

1931. Late Nesting of the Goldfinch in North Carolina: *Auk,* Vol. XLVIII, No. 2, p. 273, April.

ORR, MARK TAYLOR

1939. Yellow-breasted Chat at Brevard in December: *Chat,* Vol. III, Nos. 2 and 3, pp. 24-25, February-March.

PALMER, T. S.

1931. Audubon's Shearwater in the United States: *Auk,* Vol. XLVIII, No. 2, pp. 198-206, April. Contains some North Carolina records.

PALMER, WILLIAM

1898. Our Small Eastern Shrikes: *Auk,* Vol. XV, No. 3, pp. 244-258, July.

PEARSON, T. GILBERT

1892. Spring Notes from Guilford County, North Carolina: *O and O,* Vol. XVII, p. 76, May.

1893. In the Great Dismal Swamp: *O and O,* Vol. XVIII, p. 26, February.

1897. Brunnich's Murre (*Uria lomvia*) at Newberne, North Carolina: *Auk,* Vol. XIV, No. 2, p. 202, April.

1898a. Nesting Habits of Some Southern Forms of Birds in Eastern North Carolina: *Jour. Eli. Mitch. Sci. Soc.,* Vol. XV, part 1, November.

1898b. An Addition and a Correction to the List of North Carolina Birds: *Auk,* Vol. XV, No. 3, p. 275, July.

1899a. Notes on Some of the Birds of Eastern North Carolina: *Auk,* Vol. XVI, pp. 246-250, July.

1899b. Preliminary Catalogue of the Birds of Chapel Hill, with Brief Notes on Some of the Species: *Jour. Eli. Mitch. Sci. Soc.,* Vol. XVI, part 1, October. Enumerates 132 species and subspecies.

1901. Stories of Bird Life: Published by B. F. Johnson Pub. Co., Richmond, Va.

1905. The Cormorants of Great Lake: *Bird-Lore,* Vol. VII, No. 2, pp. 121-126, March-April.

1908a. Ornithological Work in North Carolina: *Jour. Eli. Mitch. Sci. Soc.,* Vol. XXIV, No. 2, pp. 33-43, June.

1908b. Cabot's Tern (*Sterna sandvicensis acuflavida*) Breeding in North Carolina: *Auk,* Vol. XXV, No. 3, p. 312, July.

1909. Some Common Birds of the Farm: *North Carolina Department of Agriculture, Special Bulletin,* Supplement to September Bulletin.

1920a. The Ground Dove: *Bird-Lore,* Vol. XXII, No. 2, pp. 126-129, March-April.

1920b. Yellow-bellied Sapsucker: *Bird-Lore,* Vol. XXII, No. 3, pp. 188-191, May June.

1920c. Exploring for New Bird Colonies: *Bird-Lore,* Vol. XXII, No. 4, pp. 255-262. Heron rookery and Osprey nests at Orton.

1921. Brown Creeper: *Bird-Lore,* Vol. XXIII, No. 1, pp. 60-63, January-February.

1922a. Maryland Yellow-throat: *Bird-Lore,* Vol. XXIV, No. 1, pp. 62-65, January-February.

1922b. Herons of the United States, Little Blue Heron, Snowy Egret: *Bird-Lore,* Vol. XXIV, No. 5, pp. 308-314, March-April.

1922c. Report of the President: *Bird-Lore,* Vol. XXIV, No. 6, pp. 399-400, November-December.

1923a. North Carolina Again Says "NO":*Bird-Lore,* Vol. XXV, No. 2, pp. 159-160, March- April.

1923b. Herons of the United States: *Bird-Lore,* Vol. XXV, No. 3, pp. 218-221, May-June, and No. 5, pp. 355-358, September-October.

1925. Water Turkey: *Bird-Lore,* Vol. XXVII, No. 4, pp. 288-291, July-August.

1926: The Double-crested Cormorant: *Bird-Lore,* Vol. XXVIII, No. 4, pp. 303-306, July-August.

1928. The Killing of Robins Stopped in North Carolina: *Bird-Lore,* Vol. XXX, No. 3, p. 235.

1930. Notes and News. The Currituck Situation: *Bird-Lore,* Vol. XXXII, No. 2, pp. 174-175.

1934. Eastern House Wren (*Troglodytes aedon aedon*) Breeding in North Carolina: *Auk,* Vol. LI, No. 1, pp. 87-88, January.

1940. North Carolina Bird Colonies: *Auk,* Vol. LVII, No. 3, pp. 423-424, July. Forty-one colonies noted, mostly of Terns, Black Skimmers, and Laughing Gulls.

PEARSON, T. GILBERT; C. S. BRIMLEY; AND H. H. BRIMLEY

1919. *The Birds of North Carolina*: North Carolina Geological and Economic Survey, Vol. IV, pp. 380, figures 275, plates 29.

PENNOCK, C. J.

1911. Bird Notes from Pinehurst, North Carolina: *Wilson Bulletin,* Vol. XXIII, No. 74, pp. 34-42. 67 species noted.

PERINE, KEBLE B.

1925. Cape May Warbler in North Carolina: *Auk,* Vol. XLII, p. 250.

PERINE, MR. AND MRS. KEBLE B.

1924. Bird Lore's Twenty-fourth Christmas Census, Chapel Hill: *Bird-Lore,* Vol. XXVI, No. 1, p. 33, January-February.

PERINE, THELMA B. AND KEBLE B.

1925. Winter Habits of the White-throated Sparrow at Chapel Hill, North Carolina: *Auk,* Vol. XLII, pp. 447-449.

PETERS, JAMES L., AND LUDLOW GRISCOM

1938. Geological Variation in the Savannah Sparrow: *Bulletin of the Museum of Comparative Zoology,* Vol. LXXX, pp. 443-478, 1 plate, January.

PHILLIPS, J. C.

1912. Mallard and Black Ducks at Currituck, North Carolina: *Auk,* Vol. XXIX, No. 4, pp. 533-554, October.

1913a. Migration and Periodic Accuracy: *Auk,* Vol. XXX, No. 2, pp. 191-204, April.

1913b. A Crested Canada Goose: *Auk,* Vol. XXX, No. 4, October. (From Pea Island, North Carolina.)

1915. The Old New England Bob-White: *Auk,* XXXII, No. 2, pp. 204-207, April.

PITTS, GROVER

1938. Notes from the Cape Hatteras Region: *Auk,* Vol. LV, No. 3, p. 552, July. Notes on Blue Goose, Duck Hawk, and Dovekie.

POOLE, EARL R.

1923. Summer Birds of the North Carolina Coast: *Auk,* Vol. XL, No. 1, pp. 144-146, January.

POUGH, RICHARD H.

1940. Ocean Birds in Winter: *Chat,* Vol. IV, Nos. 5 and 6, p. 49, May-June.

QUAY, T. L.

1941. Smoky Mountain Birds: *Chat,* Vol. V, No. 4, p. 56, September.

REEVES, G. G.

1919. An Albino Wood Thrush, (from Winston-Salem): *Bird-Lore,* Vol. XXI, No. 2, pp. 107-108, March-April.

RICHARDSON, RUSSELL, JR.

1926. The Black-throated Green Warbler in the Dismal Swamp: *Auk,* Vol. XLIII, No. 4, pp. 552-553, October. The birds were observed in the North Carolina part of the swamp.

RHOADS, S. N.

1895. Contributions to the Zoology of Tennessee: No. 2, Birds, *Proc. Acad. Sci. Phlia.,* 1895, p. 463 *et seq.*

SANRORN, NELLIE F.

1933. The Romance of a Chickadee: *Bird-Lore,* Vol. XXXV, No. 3, pp. 149-151, May-June. Records the mating of a male Titmouse and a female Chickadee with notes on the hybrid offspring which she calls "Chickmice."

SEEMAN, ERNEST

1929. A Catalog of the Birds of Durham County, North Carolina: *Jour. Eli. Mitch. Sci. Soc.,* Vol. XLV, No. 1, pp. 150-163, November. Lists 143 forms.

SENNETT, G. B.

1886. Observations in Western North Carolina Mountains in 1886: *Auk,* Vol. IV, pp. 240-245.

SHERMAN, F. JR.

1910. Some Peculiarities in the Distribution of Some North Carolina Birds. *Jour. Eli. Mitch. Sci. Soc.,* May.

SIMPSON, ROXIE COLLIE

1940. Birds of the Beaufort Region: *Chat.* Vol. IV, pp. 65-83, July. 236 species listed.

SKINNER, MILTON P., AND JOHN WARREN ACHORN

1928. *A Guide to the Winter Birds of the North Carolina Sandhills:* Science Press, Lancaster, Pa., pp. 302, color plates 13, figures 30.

SMITHWICK, J. W. P.

1891a. Two Days in the Woods with the Birds: *O and O,* Vol. XVI, p. 97, July.

1891b. A Curious Find: *O and O,* Vol. XVI, p. 99, July.

1891c. Nesting and Other Habits of the Pine Warbler: *O and O,* Vol. XVI, p. 119, August.

1897. Ornithology of North Carolina. A List of the Birds of North Carolina with Notes on Each Species: *N. C. Exp. Sta. Bull.*, No. 144, October 30, 1897. Enumerates 303 species and subspecies.

SNYDER, L. H.

1928. Common Birds of North Carolina: Ext. Circular No. 170, North Carolina State College. Brief descriptions with cuts of 76 species.

SNYDER, L. H., AND C. S. BRIMLEY

1928. The Dickcissel in North Carolina: *Auk,* Vol. XLV, No. 4, p. 508, October

SPRUNT, ALEXANDER, JR.

1924. Notes on the Breeding of the Carolina Junco (*Junco hyemalis carolinensis*) in the Mountains of North Carolina: *Auk,* Vol. XLI, No. 4, pp. 610-612, October.

1928. The Starling (*Sturnus vulgaris*) in Western North Carolina: *Auk,* Vol. XLV, No. 4, p. 506, October.

1929. The Herring Gull (*Larus argentatus*) in the North Carolina Mountains: *Auk,* Vol. XLVI, No. 1, p. 100, January.

1930a. The Blue-winged Warbler (*Vermivora pinus*) and the Sycamore Warbler (*Dendroica dominica albilora*) in the North Carolina Mountains: *Auk,* Vol. XLVII, No. 1, pp. 90-91, January.

1930b. Two Unusual Nesting Sites of the Carolina Junco: *Auk,* Vol. XLVII, No. 4, p. 568, October.

1932a. The Marsh Hawk in the North Carolina Mountains: *Auk,* Vol. XLIX, No. 1, p. 80, January.

1932b. Lincoln's Sparrow Again in North Carolina: *Auk,* Vol. XLIX, No. 1, p. 100, January.

1932c. Further Notes from the North Carolina Mountains: *Auk,* Vol. XLIX, No. 1, pp. 104-105, January.

1933a. Additional Notes from the North Carolina Mountains: *Auk,* Vol. L, No. 2, pp. 232-233, April.

1933b. Late Nesting of the Carolina Junco (*Junco hyemalis carolinensis*): *Auk,* Vol. L, No. 1, pp. 122-123, January.

1935a. Late Nesting of Bob-white in North Carolina: *Auk,* Vol. LII, No. 1, p. 80, January.

1935b. Migrant Shrike in the North Carolina Mountains: *Auk,* Vol. LII, No. 1, p. 91, January.

SPRUNT, ALEXANDER, JR., AND J. J. MURRAY

1930a. Little Blue Heron (*Florida caerulea caerulea*) in the North Carolina Mountains: *Auk,* Vol. XLVII, No. 4, p. 556, October.

1930b. Mass Occurrence of the Duck Hawk (*Falco peregrinus anatum*) in the Mountains of North Carolina: *Auk,* Vol. XLVII, No. 4, pp. 563-564, October.

1936. The Rough-legged Hawk in the North Carolina Mountains: *Auk,* Vol. LIII, No. 1, p. 77, January.

1938. The Southern Dovekie Flight of 1936: *Auk,* Vol. LV, No. 1, pp. 85-88, January.

STEPHENS, JAMES L.

1941. The Wood Ibis Visits North Carolina: *North Carolina Wildlife Conservation,* North Carolina Department of Conservation and Development, Vol. V, No. 12, pp. 10-13, December.

STEVENSON, J. O., AND WILLIAM JOHNSTON HOWARD

1939. Winter bird notes from the North Carolina Coast: *Auk,* Vol. LVI, No. 3, pp. 343-344, July. Records Snowy Owl, Blue-gray Gnatcatcher and Snow Bunting.

STONE, H. F.

1920. The Purple Gallinule in North Carolina: *Auk,* Vol. XXXVII, No. 1, p. 130, January.

STONE, WITMER

1900. Breeding of the Little Black Rail (*Porzana jamaicensis*) at Raleigh, North Carolina: *Auk,* Vol. XVII, No. 2, pp. 171-172, April.

1903. A Hybrid Duck, *Anas boschas X Nettion carolinensis*: *Auk,* Vol. XX, No. 2, pp. 209-210, April.

1923. Razor-billed Auk in North Carolina: *Auk,* Vol. XL, No. 2, p. 317, April.

1924. European Widgeon in North Carolina: *Auk,* Vol. XLI, No. 2, p. 338, April.

1931. Rare Geese on the North Carolina Coast: *Auk,* Vol. XLVIII, No. 1, p. 111, January.

STUPKA, ARTHUR

1938. Red Crossbills Breeding in Great Smoky Mountains National Park: *Auk,* Vol. LV, No. 4, p. 675, October. Observed adults feeding young near Gatlinburg, Tenn., and a single young bird at Indian Gap, near the N. C.-Tenn. State line.

TAYLOR, OTIS BOYD

1938. Pigeon Hawk at Cape Hatteras, North Carolina: *Auk,* Vol. LV, No. 3, p. 525, July.

THAYER, GERALD H.

1902. The Red Phalarope in North Carolina: *Auk,* Vol. XIX, No. 3, pp. 285-286, July.

THAYER, JOHN E.

1905. The Dovekie on the Coast of North Carolina: *Auk,* Vol. XXII, No. 3, p. 310, July.

TOMKINS, IVAN R.

1941. Notes on Macgillivray's Seaside Sparrow: *Auk,* Vol. LVIII, No. 1, pp. 38-51, January. Contains a number of references to North Carolina specimens and records.

WALLACE, ROBERT B.

1936. Unusual Birds in Western North Carolina: *Auk,* Vol. LIII, No. 2, p. 227, April.

WAYNE, ARTHUR T.

1888. Nesting of the Brown-headed Nuthatch in South Carolina: *O and O,* Vol. XIII, pp. 21 *et seq.,* February.

1899. Notes on Marian's Marsh Wren, *Cistothorus marianae,* and Worthington's Marsh Wren, *Cistothorus palustris griseus*: *Auk,* Vol. XVI, No. 4, pp. 361-362, October.

1910a. The Wood Ibis (*Mycteria americanus*) in the Mountains of North Carolina; *Auk,* Vol. XXVII, No. 1, p. 79, January.

1910b. The Cerulean Warbler (*Dendroica cerulea*) Breeding in Burke County, North Carolina: *Auk,* No. 1, pp. 84-85, January.

1910c. Birds of South Carolina: *Contributions from the Charleston Museum.*

1914. A Second North Carolina Record for Lincoln's Sparrow (*Melospiza lincolni*): *Auk,* Vol. XXXI, No. 4, p. 542, October.

WETMORE, ALEXANDER

1930. The Florida Barred Owl in North Carolina: *Auk,* Vol. XLVII, No. 2, p. 253, April.

1936. A New Race of the Song Sparrow from the Appalachian Region: *Smithsonian Misc. Coll.,* Vol. XCV, No. 17, September 26.

1941. Notes on the Birds of North Carolina: *Proceedings of the United States National Museum,* Vol. XC, pp. 483-530.

WESTON, FRANCIS M., JR.

1913. Additional Notes from the Mountains of Western North Carolina: *Auk,* Vol. XXX, No. 3, pp. 418-421, July, 1913.

WHITE, JASPER B.

1910. Blackheads Breeding in Currituck, North Carolina: *Forest and Stream,* p. 211, August 6.

WILLIAMS, ELLISON A.

1935. Swainson's Warbler in the North Carolina Mountains: *Auk,* Vol. LII, No. 4, pp. 458-459, October.

WOOLMAN, EDWARD

1916. The Whistling Swan of Currituck Sound: *Forest and Stream,* Vol. LXXXVI, p. 906, April.

WRAY, D. L.

1939. The Nesting of Certain Birds at Raleigh, in 1939; *Chat,* Vol. III, Nos. 9 and 10, pp. 70-71, September-October.

WRIGHT, ALBERT HAZEN

1914. Early Records of the Wild Turkey: *Auk,* Vol. XXXI, No. 3, p. 352, July.

1915. Early Records of the Wild Turkey: *Auk,* Vol. XXXII, No. 2, p. 207, April.

WRIGHT, HORACE W.

1917. Orange-crowned Warbler in Massachusetts: *Auk,* Vol. XXXIV, No. 1, p. 21 January.

☆ The records and information now added in this revision have been obtained from the following publications to which the reader is referred: *The Chat, The Auk, The Wilson Bulletin, A. C. Bent's Life Histories,* and others.

In addition many unpublished records of our birds have been used for the revisions in this book. ☆

ADDENDA

Since an unfortunate printers strike has delayed the finishing of this book, for several months, the editors deem it advisable to ploce here some important loter records.

With these are page numbers and AOU numbers which will assist book owners in arranging cross references for their convenience.

CATTLE EGRETS (Text poge 31)

Bubulcus ibis ibis Linnoeus. [200.1]

NOTE: Two additional records for the Cattle Egret ore noted for inlond points in North Carolino. One wos seen on April 28, 1958, at Sotterwhite's Point on the shore of Kerr Loke o few miles north of Henderson, Vance County, by Mrs. A. W. Bochmon et al. Another wos seen by J. F. Greene at a small pond one and one-half miles east of Clayton, Johnston County, on Moy 2, 1959.

An odditional nesting record is thot two pairs of these birds were nesting on Storvotion Islond, Carteret County, during July, 1959.

GARGANEY TEAL (Text page 69)

Anas querquedula Linnoeus.

DESCRIPTION. Abaut the size of our Teal ducks. Male with dark brown crown underlined by a braad curved white line from obave the eye to the nape of the neck. The shaulders are blue, long, painted, black and white feothers droop over the wings; the warm brawn af the breast makes an abrupt margin with the white af the abdomen. Female: brown to darker with feather edges paler than ather teal.

RANGE. Breeds south af Arctic Circle area including the British Isles; winters ta tropical Africa and southern Asia.

RANGE IN NORTH CAROLINA. One male specimen was observed on March 25, 30, ond 31, 1957, at Cape Hotteras, Dore County.

This bird of unusual plumoge was noted on a fresh woter pond near the Cape Hatteras Lighthouse on March 25, 1957, by Professor John A. Gustafson, Courtlond, N. Y. He made sketches ond discussed it with the Park Ranger.

On Morch 30, 1957, President Daniel Z. Gibson of Washington College, Chestertown, Md., accompanied by his son, Doniel, saw the bird with a Blue-winged Teal in the same area. It was young Doniel who wos olert to identify the odd bird as having the characters of a Gorganey.

Daniel mode the point then thot this bird might be a bird ploced on the Park pond. Since this duck has been successfully bred in captivity, since live bird fanciers have them in collections in this country, and since this bird is reputedly the first of this species found in the wild in America, inquiries have been made among breeders. They suggest that this might be an escaped bird. This suggests a complication that might well opply to other colorful and rare species.

Family **GRUIDAE.** Cranes

Genus **GRUS** Pollas.

(Text page 120)

These are very large, long-legged birds resembling herons in form, but having heavier bodies. The warty bare skin of the crown and forehead is red, and the nasal groove is very large and open.

The largest member of this genus is the Whooping Crane, *Grus americana* (Linn.), of western Canada and western United States. This bird has white plumage with black wing tips; and a yellow bill. It is 49 to 56 inches in length, and has a wing spread of 76 to 92 inches. They are now in danger of extinction.

In addition there are three races of what were formerly known as Sandhill Cranes.

Of these the Little Brown Crane, *Grus canadensis canadensis* (Linn.) nests in Siberia, Alaska, and Baffin Island, and winters south to California, southern Texas, and northern Mexico. The length is 33 to 39 inches and there is more brown in the gray body plumage.

The Sandhill Crane, *Grus canadensis tabida* (Peters) nests from Southern Canada to California and Colorado, and winters from California and Texas to central Mexico. It has a length of 40 to 48 inches and the body is bluish gray, and the bill is black.

The third race is known as the Florida Crane, *Grus canadensis pratensis* (Meyer), see below.

Cranes fly with outstretched necks and with short, jerky wing strokes. They feed more in meadows, plowed fields, and prairies than in marshes, and their food is chiefly vegetation material such as roots, seeds, corn and other grain. They also take small reptiles, rodents, and insects. Their bulky nests are usually built among the marshy vegetation of a shallow pond, or on dry spots in a prairie region

FLORIDA CRANE

Grus canadensis pratensis (Meyer). [206a]

DESCRIPTION. Adults with slaty-gray plumage; primaries and their coverts somewhat darker than general body cover; throat and cheeks dingy-whitish in color; feet and bill, black; iris of eye, brown; forehead and crown bare, reddish, thinly covered with hair-like growth. This does not extend on sides below eyes. In the very young the head is feathered and the reddish color is absent and the general body plumage is more brownish in color. Length 40 to 48 inches; spread of wings 78 inches, and bill 5 to 6 inches.

RANGE. Resident in Florida, southern Georgia (Okefenokee Swamp), southern Alabama, and southern Mississippi; also ranges casually to South Carolina (on Waccamaw River).

RANGE IN NORTH CAROLINA. Of accidental occurrence.

Our only definite record for this crane in North Carolina was made on November 19, 1957. Two specimens were taken at Lennon's Marsh, Robeson County. The heads of these were salvaged and sent to the State Museum by James L. Stephens.

In "South Carolina Bird Life", by Sprunt and Chamberlain, (1949), the Little Brown Crane and the (western) Sandhill Crane are listed. The former is on the basis of one specimen taken near Mount Pleasant (Oct. 21, 1890). The latter was included as a bird taken on the North Santee River (Dec. 19, 1941) and three sight records. The A. O. U. Check List (1957) does not list the (western) Sandhill Crane for South Carolina, but it does list the Florida Crane as "Casual in South Carolina (Waccamaw River)".

SOOTY TERN (Text page 188)

Sterna fuscata fuscata Linnaeus. [75]

NOTE: Records made by Bill Joyner and John Thompson on June 20 and July 24, 1959, indicate that this bird may be nesting in North Carolina.

Bill Joyner reported as follows: "We found a pair of Sooty Terns on an island near Cape Lookout on June 20th. These birds by their actions, gave every indication of nesting, but we could not locate the specific nest, if any, which belonged to them. They hovered over us, power dived, squalled, and otherwise behaved as the other terns and skimmers that nest there.

"On July 4th the same observers, with John Grey and Harry Davis, observed the pair of Sooty Terns at the same place. They continued the protective behavior and we made some pictures that established the identity of these birds."

This is the only June and July record for this species on the North Carolina Coast in recent years. If it was nesting, it is the only nesting record north of the Dry Tortugas (Florida Tip) since 1933, the date of the last nesting on the Louisiana Coast.

Genus **ZENAIDA** Banaparte.

WHITE-WINGED DOVE (Text page 204)

Zenaida asiatica asiatica (Linnaeus). [319]

DESCRIPTION. Has a general resemblance af the Maurning Dave but is chunkier, has a raunded tail (rather than painted) that is tipped with a braad white band, and has a distinctive white patch diaganally acrass each wing.

RANGE. Nests fram central sauthern Texas sauth thraugh eastern Mexica ta Central America, Cuba and the Bahamas. Casual in winter ta Calarada, Lauisiana, Flarida and Geargia. Accidental ta New Yark and Maine.

RANGE IN NORTH CAROLINA. Accidental Occurrence.

There are two records for this Dove in North Carolina, both from the Pea Island Refuge in Dare County. A single bird was seen on the Refuge by Sam A. Walker on June 23, 1943. Another one was seen on the Refuge on November 9, 1958 by Mr. and Mrs. John R. Gatewood.

GRAY KINGBIRD. (Note in text, page 237)

Tyrannus dominicensis dominicensis (Gmelin). [445]

DESCRIPTION. Generally about one inch longer, and similar to, our other kingbirds, a naticeably lorger bill, and with no white on the groyish brown tail.

RANGE. From lawer South Corolina southward through Florida and Puerto Rico in summer. Winters as far south as Calombia and Venezuela in Sauth Americo. Accidental records ore fram British Calumbia, Massochusetts, New York and New Jersey.

RANGE IN NORTH CAROLINA. A rare summer resident.

One was observed on June 28, 1957, perched on an overhead wire at Southport, Brunswick County by Waters Thompson. Later at the same place he also observed four birds between August 21st and 25th. From August 28th to September 9th, Mr. and Mrs. Cecil Appleberry et al observed adults feeding young on several occasions. There were two adult and two young birds observed although no nest was found.

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